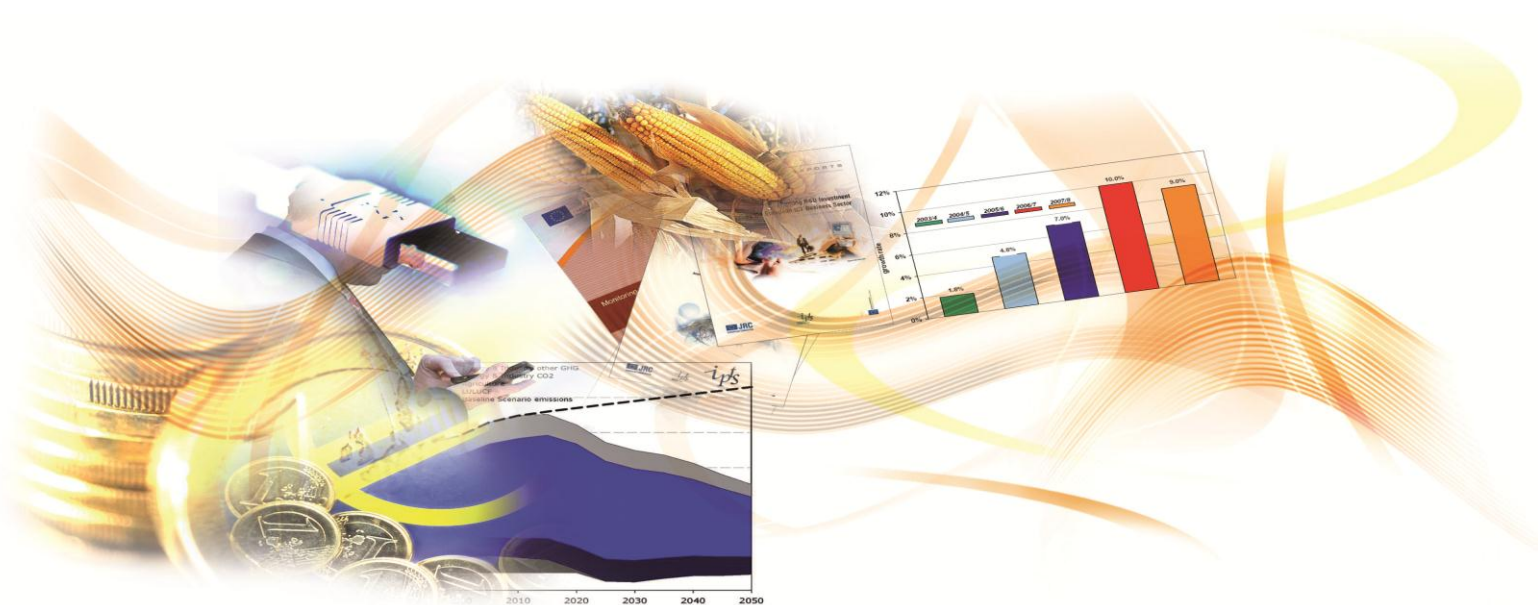


## JRC SCIENCE AND POLICY REPORTS

# Measuring the Impact of eInclusion Actors: Impact Assessment Framework Main Report

Gianluca Misuraca, Clara Centeno, Christina Torrecillas

2014



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**Abstract**

This report presents the results of the research on ***'Measuring the Impact of eInclusion Actors on Digital Literacy, Skills and Inclusion Goals of the Digital Agenda for Europe'*** conducted by JRC-IPTS and DG CONNECT. In particular it presents a comprehensive Impact Assessment Framework, the MIREIA eI2-IAF, which can be used to measure the socio-economic outputs, outcomes and impacts of eInclusion Intermediary actors in Europe. It includes both a conceptual model and an operational framework with guidelines for self-evaluation of practices, with specific regard to interventions addressed to the use of ICTs to enhance employability of groups at risk of exclusion. The research combined an analysis of literature and practice, and the development of an impact assessment framework which has been tested, in four case studies at national and regional level, representing different interventions, target groups and contexts in Europe. The results of the research are a clear advancement with regards to impact assessment methodology in the area of eInclusion and the experimentation of counterfactual impact evaluation to assess the contribution of intermediaries to Europe 2020 goals. In this perspective, the report outlines research and policy recommendations suggesting that more in-depth research is required, and support should be given in particular to the setting-up of social experimentations which focus on the various dimensions of eInclusion, and promote the scaling-up and generalisation of the MIREIA eI2-IAF.

## **Acknowledgements**

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Furthermore, we would like to thank the various experts that contributed either providing inputs preparatory to the study, or reviewing different intermediate pieces of the work, which has been crucial to design, improve and validate the Impact Assessment Framework.

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## **Note**

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*This document may be referenced as Misuraca, G., Centeno, C., and Torrecillas, C., (2014) 'Measuring the Impact of eInclusion Actors - Impact Assessment Framework', European Commission, JRC-IPTS Science and Policy Report Series. Luxembourg, Publications Office of the European Union.*

*For more information about this project see: <http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/MIREIA.html>*

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## Preface

Although the number of internet users in the European population continues to increase, with 72% reporting that they used the internet at least weekly in 2013,<sup>1</sup> there are still **important gaps in digital inclusion and digital skills in Europe**. 20% of the European citizens have never used Internet due to lack of interest (49%), lack of skills (37%) and equipment (30%) and access costs (26%). Furthermore, 47% of them have insufficient digital skills and 23% have none at all. In the case of disadvantaged people (aged 55-74, low educated, unemployed or retired or inactive), there are greater challenges. 43% of these do not use Internet weekly, 64% have insufficient digital skills and 38% have no digital skills.

These challenges were addressed by the **eInclusion policy** launched as part of the Lisbon 2010 strategy and revised under the **Digital Agenda for Europe (DAE)** flagship initiative in the Europe 2020 strategy. It aims to *'reduce gaps in Information and Communication Technologies (ICTs) usage and promote the use of ICTs to overcome exclusion, and improve economic performance, employment opportunities, quality of life, social participation and cohesion.'*

In addressing these challenges, *"the implementation of the Digital Agenda for Europe (DAE) will require a sustained level of commitment at both EU and Member States level. It cannot succeed without a major contribution by other stakeholders"*.<sup>2</sup> It calls in particular for multi-stakeholder partnerships, ICT training and certification outside formal education systems.

In this context, digital inclusion and social inclusion actors such as Public Internet Access Points, public libraries, third sector organisations including NGOs and social workers - in a word, **eInclusion intermediaries** - **play a crucial role**, in providing digital literacy to excluded groups. They also use ICT to improve the social inclusion of groups at risk of exclusion by helping them to acquire new skills (through eLearning platforms) or to find a job. However, there is an explicit need, at both policy and stakeholder level, to better understand who these intermediaries are and to create adequate instruments to support the provision of evidence of eInclusion intervention outcomes, and their contribution to the achievement of eInclusion policy socio-economic goals.

As part of their research strategy on ICT for employability and inclusion, JRC-IPTS and DG CONNECT conducted the study '**Measuring the Impact of eInclusion Actors on Digital Literacy, Skills and Inclusion Goals of the Digital Agenda for Europe (MIREIA)**'. This policy-oriented research project aimed to map and characterise the diverse set of eInclusion intermediary actors involved in implementing eInclusion policies in the European Union and develop suitable measurement instruments to support the production of evidence on how they contribute to the achievement of the DAE and Europe 2020 socio-economic goals.

The research project has produced the following reports:

- Torrecillas, C., Centeno, C., & Misuraca, G. (2014). Characterisation and mapping of eInclusion intermediary Actors in the EU27
- Misuraca, G., Centeno, C., and Torrecillas, C., (2014) Measuring the Impact of eInclusion Actors - Impact Assessment Framework, Main Report and Annex – the MIREIA eI2-IAF Toolkit

These reports can be found at the MIREIA project web page:

<http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/MIREIA.html>

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<sup>1</sup> Digital Agenda Scoreboard (2014)

<sup>2</sup> Digital Agenda for Europe COM (2010) 245

# TABLE OF CONTENTS

<b>Preface</b> .....	<b>2</b>
<b>Executive Summary</b> .....	<b>5</b>
<b>1. Introduction</b> .....	<b>9</b>
1.1. Objectives and methodology.....	9
1.2. Key concepts.....	11
1.3. Structure of the report.....	15
<b>2. State of play</b> .....	<b>17</b>
2.1. Key findings from review of literature on eInclusion.....	17
2.2. State of the art in assessing impacts of eInclusion.....	19
<b>3. Conceptualising MIREIA eI2-IAF</b> .....	<b>25</b>
3.1. Theoretical orientations.....	25
3.2. Conceptual model.....	27
3.3. Focus on employability.....	30
<b>4. Operationalising MIREIA eI2-IAF</b> .....	<b>33</b>
4.1. Overview .....	33
4.2. Impact measurement tool.....	35
4.3. Methodological guidelines for impact evaluation .....	44
<b>5. Test and validation of the MIREIA eI2-IAF</b> .....	<b>51</b>
5.1. Methodological approach .....	51
5.2. Case studies: testing the MIREIA e-I2-IAF .....	52
5.3. Cross-case analysis .....	67
<b>6. Research and policy implications</b> .....	<b>73</b>
6.1. Research implications.....	73
6.2. Policy implications .....	73
<b>References</b> .....	<b>75</b>

**Annex (the MIREIA eI2-IAF Toolkit) - this is available at:**

<http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/MIREIA.html>

## List of tables

Table 1	Synthetic state of the art on availability of data and evidence on eInclusion.....	22
Table 2	Typologies of interventions and related expected impacts.....	29
Table 3	Use of evaluation criteria to assess specific impact dimensions.....	42
Table 4	Possible use of the Impact Measurement Tool.....	43
Table 5	Impact Evaluation Methodologies tested in the Case Studies .....	44
Table 6	Pane & Internet – Lavoro: Methodological approach for Randomised Controlled Trial .....	54
Table 7	INN&CIA: Methodological approach for Propensity Score Matching.....	59
Table 8	INN&CIA: questions and impact variables used for applying the Propensity Score Matching.....	59
Table 9	FIT: summary of methodological approach for simplified impact evaluation.....	63
Table 10	FRSI: summary of methodological approach for simplified impact evaluation .....	66
Table 11	FRSI: Link to the future: feedback from participants.....	67
Table 12	Key characteristics of the case studies.....	68

## List of figures

Figure 1	The logic chain of evaluation.....	12
Figure 2	The conceptual framework of the EC funded Vienna Study.....	21
Figure 3	The conceptual model underpinning the MIREIA eI2-IAF .....	28
Figure 4	The MIREIA eI2-IAF applied to 'employability' .....	30
Figure 5	Main steps of the Randomised Controlled Trials approach.....	45
Figure 6	Main steps in the propensity score matching approach.....	47
Figure 7	Main steps in the simplified method of impact evaluation.....	49
Figure 8	Design of the activities of testing and validation of the MIREIA eI2-IAF .....	51
Figure 9	Behavioural changes in job searching methods usage (outcome indicators).....	55
Figure 10	Behavioural changes in using internet for job searching (impact variables) .....	56
Figure 11	Difference on average of reported levels of impact variables between treated and control groups .....	60
Figure 12	Comparison between previous cohorts and control cohort one year after intervention .....	63

## List of Boxes

Box 1	The cases of Emilia Romagna region, Italy and Guadalinfo, Andalusia, Spain .....	40
Box 2	The cases of FIT, Ireland and FRSI, Poland .....	41
Box 3	Example of application of the Randomised Controlled Trials Methodology .....	46
Box 4	Example of application of the Propensity Score Matching Methodology .....	48

## Executive Summary

### Background

The **eInclusion policy** was launched as part of the Lisbon 2010 strategy and revised under the Digital Agenda flagship initiative in the Europe 2020 strategy. It aims to *'reduce gaps in Information and Communication Technologies (ICTs) usage and promote the use of ICTs to overcome exclusion, and improve economic performance, employment opportunities, quality of life, social participation and cohesion.'*

In this context, there is an explicit need, at both policy and stakeholder level, to create adequate instruments to support the measurement of eInclusion intervention outcomes, and their contribution to the achievement of eInclusion policy socio-economic goals.

As part of their research strategy, JRC-IPTS and DG CONNECT conducted **the study, 'Measuring the Impact of eInclusion Actors on Digital Literacy, Skills and Inclusion Goals of the Digital Agenda for Europe (MIREIA)'**. This policy-oriented research project aimed to map and characterise the diverse set of eInclusion intermediary actors involved in implementing eInclusion policies in the European Union and develop suitable measurement instruments to support the development of evidence on how they contribute to the achievement of the Europe 2020 goals.

In this context, **eInclusion intermediary actors** are defined as: *'public, private and third sector organisations which intentionally address social inclusion goals through ICTs or promote the use of ICTs to enhance the socio-economic inclusion of marginalised and disadvantaged groups and of people at risk of exclusion'.*

This report presents the research results of the second component of the project, which provides a comprehensive Impact Assessment Framework, **MIREIA eI2-IAF**. This can be used to measure the socio-economic outputs, outcomes and impacts of eInclusion Intermediary actors in Europe. It **includes both a conceptual model and an operational framework** with practical guidelines.

The research combined an analysis of the literature and practice in the field of eInclusion evaluation and impact assessment. It further developed an initial impact assessment framework and tested it in four case studies at national and regional level, representing different interventions, target groups and contexts in Europe.

### Key Results

The review of the literature and practice in eInclusion, and in particular the analysis of the state of play with regard to impact assessment in this field, leads us to conclude that:

- There is recognition that **evaluation and impact assessment in this field is still relatively under-researched** and those evaluation studies that have been undertaken have frequently been methodologically weak.
- Impact assessment is still largely perceived as a 'donor/funder requirement' rather than a 'strategic management tool'. As a consequence, **impact assessment is generally not included in the design of interventions**.
- **There is a lack of accepted and tested methods, tools and indicators** to assess the social and economic impact of ICT-driven initiatives to promote social and economic inclusion and employability in particular.

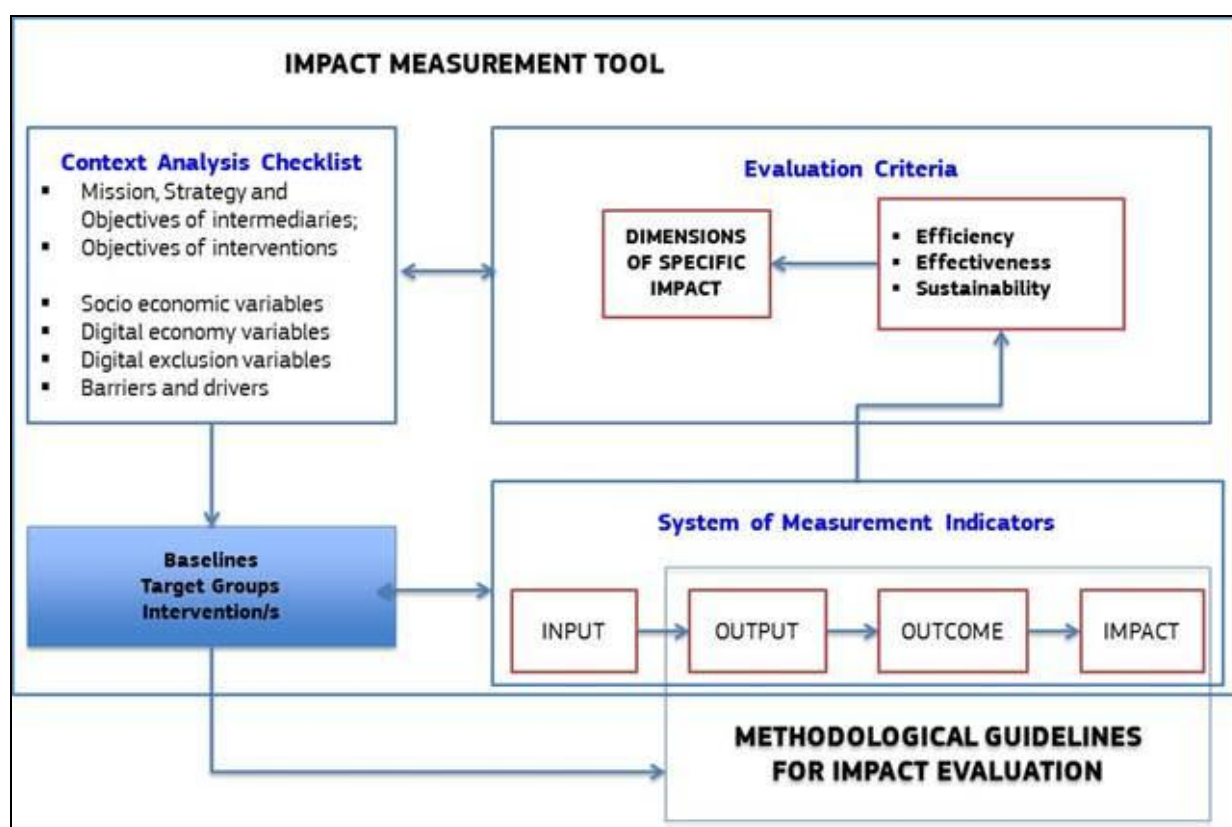
These results confirm the widely-held view that there is a need for more rigorous and tested impact assessment methods and tools. To be effective, these methods and tools need to take into account the context, constraints and needs of grass-roots organisations.

Based on that, the conceptual model underpinning the MIREIA eI2-IAF, which is grounded on the logic framework for impact assessment of the European Commission, has been specifically adapted to eInclusion interventions in the sense that:

- it is structured to capture the contribution of a given intervention to promote social and economic inclusion;
- it considers several levels of impacts at micro (intervention), meso (intermediary actor) and macro (policy) level;
- it is embedded into the capability approach and includes the different interrelated fields of digital and social inclusion;
- it considers the context of the interventions;
- and, finally, it takes into account the perspectives of both practitioners and beneficiaries of interventions.

Thus the MIREIA eI2-IAF conceptual model allows us to identify the multidimensional characteristics which underpin eInclusion interventions and the effects of ICTs in the specific context of reference and propose a set of expected impacts and possible measurement indicators.

As the MIREIA eI2-IAF is intended for use by eInclusion Intermediaries, a **MIREIA eI2-IAF Toolkit**, including the Impact Assessment operational framework and its accompanying guidelines, has been developed. It focuses particularly on a range of interventions carried out by intermediary actors that aim to increase *employability*. It identifies the various *typologies of these eInclusion interventions* and associates them with the four dimensions of specific impact identified, namely: skilling, empowerment, networking and job placement. An outline of the operational framework is presented below.



**Testing the MIREIA eI2-IAF operational framework in real-life settings** in four case studies with the participation of the intermediary actors, allowed us to validate it and to develop its operational elements. It also provided some **preliminary results** with regards to the outcomes and impacts of diverse eInclusion interventions that aim to improve the employability of the target groups addressed. The following interventions were evaluated:



- 1) Pane & Internet - Lavoro (Bread & Internet – Jobs) in the Emilia-Romagna Region, Italy, is a regional level intervention. In collaboration with the local employment services, it offers ICT training for Internet job search to job seekers. The natural experiment conducted reveals a positive cause-effect relationship between the training activities performed and enhanced employability of the people trained, who received an increased number of job offers by email. The results also showed a behavioural change in the use of Internet for job search.
- 2) INN&CIA, Guadalinfo, Consortium Fernando de los Rios in Andalusia, Spain, is a regional level intervention that aims to enhance opportunities for ICT-enabled social innovation and promote local entrepreneurship. A causal relationship between the activities conducted and the expected impacts was demonstrated. The small, medium and micro enterprises that took part in the intervention had better survival rates, improved internal ICT knowledge and had more employees and customers than those that did not.
- 3) Fast Track to IT (FIT) in Ireland is a national level intervention on industry-oriented ICT skills training to reduce long-term unemployment. The results of this case should be contextualised carefully, since it adopted a simplified methodology with inherent limitations in terms of counterfactual impact evaluation. However, it did show that specific ICT training can have a positive influence on the employability and employment of disadvantaged groups, decreasing the level of unemployment.
- 4) 'Link to the Future', run by the Information Society Development Foundation (FRSI) in Poland, is a national level intervention that aims to raise awareness at an early stage, among secondary education students of the potential prospects of an ICT-related career. In this case, the results show that the large majority of participants in the intervention (80%) said they had changed their attitudes to studying and developing ICT skills. 60% of them considered it to be an important way of enhancing their future employment prospects.

The testing of the MIREIA eI2-IAF thus *used counterfactual impact evaluation methodologies* in Italy and Spain, complemented by a simplified approach in Ireland and Poland. Counterfactual techniques are rarely used, especially in the domain of eInclusion, partly because of their complexity. This research can therefore be considered a stepping stone in impact assessment in the field of eInclusion. Moreover, the findings from the field tests suggest the framework is robust and practical enough to support the implementation of an evaluation of the socio-economic impacts of eInclusion interventions.

### **Research and Policy implications**

The work carried out is clearly a step forward with regards to eInclusion impact assessment methodology and the counterfactual impact evaluation of the contribution of intermediaries to Europe 2020 goals. However, due to the limited resources and time available, it was **limited in scope** as the operational framework focused on eInclusion interventions addressing employability. In addition, it was validated in a restricted set of contexts. These focused mainly on micro level of analysis (vs. meso and macro level) over a short time period, which did not allow us to fully capture the mid- and long-term effects of an intervention.

Therefore, **more research and experimentation is recommended** to expand the present MIREIA eI2-IAF to the various domains of eInclusion policy. It should be applied to a broader set of contexts and scaled up to allow impacts of interventions at higher meso and macro levels to be captured. This could be done, for example, by funding a 'large-scale' pilot, or embedding the MIREIA eI2-IAF approach into mainstream policy interventions, such as those funded by the European Social Fund or other initiatives.

Nevertheless, in spite of its limited focus on employability, the operational framework developed remains very relevant to the vast majority of intermediaries across Europe. According to the MIREIA survey of eInclusion intermediaries in Europe, over 90% of them provide basic ICT literacy and training, a key component for developing employability, and 50% offer employment-related training. It is therefore suggested that **policy makers at different levels encourage the use of the developed MIREIA eI2-IAF** and support the establishment of methodological and operational coordination to collect comparable data and aggregate it at national and European levels. In this context, it is worth noting that although the

proposed methodology can easily be applied to different contexts and is relatively easy to use, **the application of counterfactual impact evaluation techniques may require expert support** and may face financial constraints, which European policies could address.

In addition, it is suggested that stakeholders across Europe be encouraged to use **the MIREIA eI2-IAF for self-assessment**. We recommend that this is done in collaboration with networks of stakeholders and practitioners. The Commission could support this awareness raising and capacity building process by helping to disseminate and promote the use of the MIREIA eI2-IAF across Europe. This could be done in the context of the Digital Agenda, with the support of the Digital Champions and the Grand Coalition and Local Coalition for digital jobs policy activities.

Finally, considering that **social innovation** is becoming fully embedded in EU policies and programmes, it will be vital to be able to demonstrate impact and provide assessment of what works. The ability to select from a very wide range of options those that are most promising is a key policy challenge. The MIREIA eI2-IAF could help the EC, the Member States and intermediary organisations **to conduct ex-ante assessment of policy initiatives** that address ICT-enabled social innovations, where methods of measurement and metrics for assessing impacts are still underdeveloped.

# 1. Introduction

## 1.1. Objectives and methodology

**Information and Communication Technologies (ICTs)** play an essential role in supporting daily life in today's digital society. The **eInclusion policy**, launched under the Lisbon 2010 strategy, aims to '*reduce gaps in ICT usage and promote the use of ICTs to overcome exclusion, and improve economic performance, employment opportunities, quality of life, social participation and cohesion*'. The **Europe 2020 strategy** establishes ICTs as a core element for five of its seven flagship initiatives: the Digital Agenda for Europe; the European Platform against Poverty and Social Exclusion; An Agenda for New Skills and Jobs; Youth on The Move; and the Innovation Union. In particular, **Digital inclusion is a key objective of the Digital Agenda for Europe (DAE)** which aims to make 'Every European Digital' and recognises that for its implementation, '*a sustained level of commitment at both EU and Member States level is required*', and that '*it cannot succeed without a major contribution by other stakeholders*'.

In this context, **eInclusion intermediary actors play a relevant role in achieving the goals of the DAE**, particularly in two of its action areas: enhancing digital literacy, skills and inclusion; and ICT-enabled benefits for EU society. Despite the recognition of their role, there is limited knowledge of the contribution these actors are making to the improvement of socio-economic inclusion in the communities and groups they serve. In addition, most of these organisations do not have the capacity to assess the impact of their activities.

The European Commission, by stressing the **importance of demonstrating tangible impacts**, set in motion an important process in the domain of eInclusion. A landmark in this process was the 2006 Riga Declaration<sup>3</sup> where European governments committed themselves to clear, bold, and measurable targets.<sup>4</sup> Since then, several studies have examined the context within which eInclusion initiatives are undertaken in order to assess their impact. These, however, consistently paint a very diverse and muddled picture.

For this reason, in 2012, the Institute for Prospective Technological Studies of the European Commission's Joint Research Centre (JRC-IPTS) together with the Directorate General Communication Networks, Content and Technology (DG CNECT) launched a research project on '**Measuring the impact of eInclusion Actors on Digital Literacy, Skills and Inclusion Goals of the DAE**'.<sup>5</sup> This project aimed to: 1) better characterise eInclusion intermediary actors, and 2) create adequate instruments to facilitate the measurement of their social and economic impact. The research findings with regards to the first objective are presented in a separate report.<sup>6</sup> **The present report presents instead the key findings of the research for the second objective of the project.** This was to build and test an appropriate impact assessment framework to systematically collect end-users longitudinal micro-data through grass-roots organisations and aggregate it at various levels, in order to facilitate the measurement of outcomes and the estimation of the impact of those actors on employment, education and social inclusion. The goal of this report is therefore to present the resulting comprehensive Impact Assessment Framework for measuring the socio-economic outputs, outcomes and impacts of eInclusion Intermediary actors in Europe (named MIREIA eInclusion Intermediary Actors - Impact Assessment Framework - hereafter **MIREIA eI2-IAF**<sup>7</sup>).

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<sup>3</sup> Riga Ministerial Declaration available at:

[http://ec.europa.eu/information\\_society/activities/ict\\_psp/documents/declaration\\_riga.pdf](http://ec.europa.eu/information_society/activities/ict_psp/documents/declaration_riga.pdf)

<sup>4</sup> The 2007 Communication on eInclusion (European Commission, 2007b) stressed the potential tangible and quantifiable benefits estimated in its supporting Impact Assessment (European Commission, 2007a). This impact assessment was the first attempt to provide a measurement and evaluation model for the impacts of eInclusion.

<sup>5</sup> See: <http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/MIREIA.html>

<sup>6</sup> See JRC Scientific and Policy Report 'Characterisation and mapping of eInclusion intermediary Actors in the EU27' (2014) Torrecillas, C., Centeno, C., & Misuraca, G., available at <http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=7220>

<sup>7</sup> The reason for the acronym chosen is twofold. First, it stresses the fact that the IAF is focused on eInclusion Intermediaries (thus eI2). Second, to make reference to the I<sup>2</sup> paradigm of Inclusive technological Innovation and Innovative Inclusive policies defined in the so called 'Vienna Study' (EC, 2009) where it is underlined that '*there are few fields where Inclusion and Innovation are so entwined and can virtuously feed each other as that of inclusive services supported by ICTs*'.

The development of the MIREIA eI2-IAF had to be scientifically rooted and, at the same time, take into account implementation constraints in the field. It had to provide practical guidelines for the application of the framework, including a concrete set of indicators to monitor and assess eInclusion interventions carried out by intermediary organisations.

**The MIREIA eI2-IAF includes both a conceptual model and an operational framework** with guidelines for self-evaluation of practices, linking the concrete interventions implemented by eInclusion intermediaries to policy goals, in order to ultimately assess the socio-economic impact of eInclusion (*in-itinere* and *ex-post*) and to estimate potential impacts of their interventions (*ex-ante*).

As a matter of fact, the opportunities offered by ICTs are not yet fully understood by many stakeholders. More awareness and, especially, evidence through measurement and evaluation is needed about the economic and non-economic benefits of eInclusion.

Particularly salient in the current period of financial turmoil and socio-economic crisis is the recognition that digital skills are a source of human capital that enable people to be better prepared for the job market. The impact assessment framework has been developed to focus on how ICTs can enhance **employability**, which is defined as '*the combination of factors and processes that enable people to progress toward or find employment, to remain employed, and/or to advance in the workplace*' (Green et al, 2012).

**The methodology** adopted can be described as a mix of analysis of secondary sources, conceptualisation work and action research<sup>8</sup> using quantitative and formalised methods. Moreover, it was implemented in strict consultation with relevant stakeholders.

First of all, a review of literature on theories and explanations of the value and impact of eInclusion interventions and their dynamics with local communities, and an analysis of policy, methodologies and indicators on digital inclusion, employment, education and social inclusion was conducted.<sup>9</sup> Based on this, a draft proposal of the MIREIA eI2-IAF, outlining the conceptual and methodological principles underpinning its construction was put forward.<sup>10</sup>

The development of the operational level of the MIREIA eI2-IAF and of a complete set of indicators for monitoring and evaluation was further refined and validated through its **application to four case studies**, which represent different contexts and regions of Europe and conduct diverse activities targeting specific audiences, as follows:<sup>11</sup>

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<sup>8</sup> Action Research challenges traditional social science by moving beyond reflective knowledge created by outside experts sampling variables, to an active moment-to-moment theorising, data collecting and inquiry occurring in the midst of emergent structure. In this sense, performing Action Research is the same as performing an experiment, thus it is an empirical process geared toward social change. In general most basic texts on Action Research converge in defining it not as a collection of principles, theories, and methods but rather a perspective: research should support collective action and change (social innovation) while at the same time producing new knowledge [e.g. Argyris, C., R. Putnam, et al. (1985). *Action Science: Concepts, methods and skills for research and intervention*. San Francisco Jossey-Bass; Greenwood, D. and M. Levin (1998). *Introduction to action research: social research for social change*. Thousand Oaks, California, Sage Publications; Reason, P. and H. Bradbury, Eds. (2007). *Handbook of Action Research*. London, Sage; Stringer, E. (1998). *Action Research*. Thousand Oaks, California, Sage Publications]. More technically Action Research is an interactive inquiry process that balances problem solving actions implemented in a collaborative context with data-driven collaborative analysis or research to understand underlying causes enabling future predictions about personal and organisational change [Reason, P. and H. Bradbury, Eds. (2007). *Handbook of Action Research*. London, Sage].

<sup>9</sup> The reviews of literature and practice have been based on two preparatory studies, namely '*Literature review of how Telecentres operate and have an impact on eInclusion*', with final report published as Garrido, M., Sey, A., Hart, T., Santana, L. (2012) European Commission, JRC-IPTS Technical Report; Stewart, J., Rissola, G., Misuraca, G., Torrecillas, C. (Eds.), available at: <http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=5479>; and '*Methods to measure the Impact of eInclusion Actors*'; with final report published as Cullen, J., Haché, A., Hayward, D., & Maes, V. (2012) . European Commission, JRC Technical Report, Misuraca, G., Rissola, G., Torrecillas, C. (Eds.), available at: <http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=5439>; complemented by desk research carried out by JRC-IPTS.

<sup>10</sup> See Deliverable D2.2 of this project '*Methodological approach for developing the impact assessment framework*' (December 2012) available at [http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/documents/MIREIA-D2.2eI2IAF\\_DEF\\_20122012.pdf](http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/documents/MIREIA-D2.2eI2IAF_DEF_20122012.pdf)

<sup>11</sup> The specific methodology followed for testing and validating the impact assessment framework is described in Chapter 5, which presents also an overview of the results of the analysis of the case studies.

- 1) 'Pane & Internet - Lavoro' / (Bread & Internet – Jobs), Emilia-Romagna Region, Italy – ICT training on Internet for job searching, in collaboration with Local Employment Services - <http://www.paneeinternet.it>
- 2) INN&CIA, Guadalinfo, Consortium Fernando de los Rios, Andalusia, Spain - ICT-enabled social Innovation for employability and entrepreneurship - <http://www.guadalinfo.es>
- 3) Fast Track to IT (FIT), Ireland - ICT-Skills training to address long term unemployment - <http://www.fit.ie>
- 4) Information Society Development Foundation (FRSI), Poland - 'Link to the future. Youth, Internet, Career' - <http://frsi.org.pl>

As we will see in this report, **the MIREIA eI2-IAF contributes in several ways to filling the gaps in the availability of evidence on the impact of eInclusion:**

- First, we adopted an action research approach on the analysis of case studies in order to propose and test a system of measurement indicators that are valid and can be feasibly gathered.
- Second, we piloted counterfactual impact evaluations that could pave the way for more applications of this method in the future.
- Third, we built a general framework and a set of instruments in order to help intermediaries, depending on their objectives and resources, to both monitor and evaluate their interventions (*in-itinere* and *ex-post*) and to estimate potential impacts of their interventions (*ex-ante*).
- Fourth, we set in motion a process of capacity building that, if spread, could over time produce the micro and meso data that is still missing for macro-level (*ex-ante* and *ex-post*) evaluations of eInclusion impacts.

Being more practical, the MIREIA eI2-IAF allows eInclusion intermediaries to estimate *ex-ante* the impact that could be achieved by their interventions. It also allows them to measure and evaluate *in-itinere* and *ex-post* the impacts achieved in a given context, or on a target population, for each intervention (i.e. micro level). Finally, it permits them to aggregate these measurements and evaluations of interventions at higher levels (i.e. set of interventions and policy interventions – meso and macro).

At the same time, policy makers (i.e. public administrations at local, regional and national levels, and also potentially at European level) can use the MIREIA eI2-IAF to assess (*ex-post*) the results of policy actions implemented to help eInclusion intermediaries acting in a given geographical area by aggregating outcomes and impacts of intermediaries' interventions.

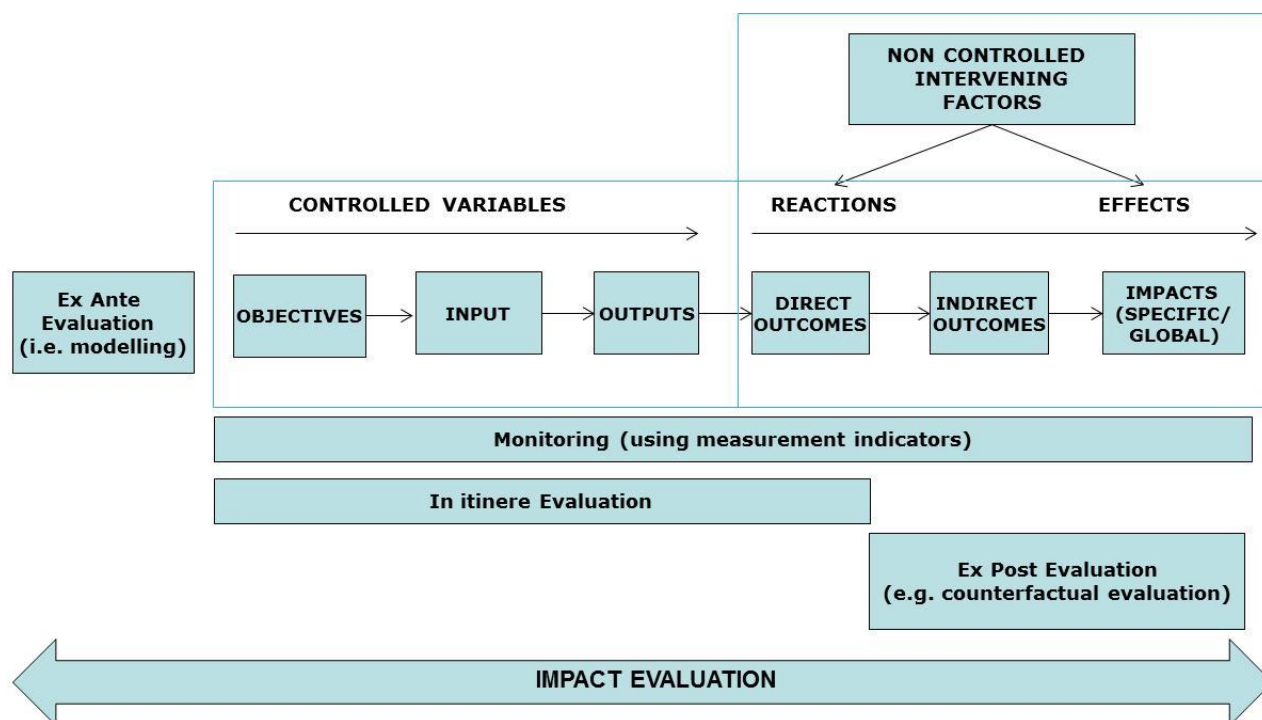
## 1.2. Key concepts

Before proceeding further we must establish some key distinctions and principles that will later be useful when describing the conceptualisation and operationalisation of the proposed framework.<sup>12</sup>

The most important distinction to be made is between evaluation *strictu sensu* on the one hand, and monitoring (and related measurement) on the other, see Figure 1.

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<sup>12</sup> See Chapter 3 and Chapter 4 respectively.



**Figure 1 – The logic chain of evaluation**

First of all, it is important to briefly explain the key terms associated with monitoring and evaluation:<sup>13</sup>

- **Inputs** are the human, material and financial resources involved in the implementation of an intervention (e.g. for an ICT training course we should consider the total cost of the training course, including costs of communication and awareness raising, planning and organisation, venue, fees of trainers, ICT infrastructure and materials used).
- **Outputs** are the goods and services produced by an intervention, whose production is within the control of those implementing them (e.g. number of participants trained in an ICT training course, i.e. who have successfully completed the course);
- **Outcomes** are the direct and intermediate changes produced for specific constituencies as a result of the initiatives. Their occurrence also depends on other intervening variables. These can be distinguished in **direct and indirect outcomes** according to their distance from the output in terms of the number of possible intervening variables. Taking the example of an ICT training course, a direct outcome would be the percentage of trained people that have actually improved their ICT skills. An indirect outcome would be the increase in self-confidence, or the increase in job offers received due to improved skills in the use of ICT for job search.
- **Impacts** are broader and longer-term changes for the target individual, the economy and society as a whole, to which interventions contribute together with other intervening variables. Two notions of impact can be distinguished, depending on whether these are effects directly linked to the intervention occurring after a certain lapse of time (**specific impacts**); or longer-term effects affecting a larger population (**global impacts**). In the case of an ICT training course, an example of a specific impact would be the percentage of trained people that actually find jobs (ICT-related),

<sup>13</sup> The definitions of key terms are elaborated from various sources, including the European Commission guidelines on evaluation (European Commission, 2004) and Impact Assessment (European Commission, 2009a, 2009b), the Handbook on Impact Evaluation of The World Bank and Oxford University (2010), the EVALSED Guide (2013) and the Guidance Documents on Monitoring and Evaluation of the European Commission, Directorate General Regional and Urban Policy available at: [http://ec.europa.eu/regional\\_policy/information/evaluations/guidance\\_en.cfm](http://ec.europa.eu/regional_policy/information/evaluations/guidance_en.cfm)

while a global impact would be an overall increase in the local system productivity and competitiveness or decreased unemployment.

- **Indicator** is a characteristic or attribute which can be measured to assess an intervention in terms of its outputs, outcomes or impacts. Output indicators are normally straightforward and can be usually measured through direct indicators (e.g. number of participants in a training course; cost of a training course). Outcome and impact indicators may be more difficult to derive. It is often appropriate to rely on indirect indicators (or proxy indicators).<sup>14</sup> Indicators can be either quantitative or qualitative.
- **Monitoring** is the continuous process of examining the delivery of programme outputs to intended beneficiaries, which is carried out during the execution of a programme. The aim is to immediately correct any deviation from operational objectives. Monitoring generates data, which can be used for evaluations and to measure the progress of activities.
- **Evaluation** in general, consists of an in-depth study of an intervention which is carried out at a discrete point in time. **Ex-ante evaluation** is conducted before the implementation of an intervention, also often referred to as an 'appraisal'. **In-itinere or interim/mid-term evaluation** is conducted during the implementation of an intervention. **Ex-post evaluation** is conducted either on or after completion of an intervention. However, whereas evaluation is used as an umbrella term to encompass all possible activities, a distinction should be made between the elements of the evaluation logic chains that are controlled (objectives, inputs, and outputs) and those that depend on uncontrolled intervening variables (outcomes and impacts). This is the key distinction between impact evaluation and more practical and pragmatic monitoring which aims to assess the extent to which the implementation of an intervention develops as planned.<sup>15</sup> **Impact Evaluation**, however, involves a systematic and objective assessment of the results achieved by an intervention. It seeks to unequivocally attribute to the intervention the observed outcomes, or to put it differently to prove that the intervention caused the change observed in the outcomes for the beneficiaries and that ultimately contributed to generate impacts.<sup>16</sup> Monitoring concerns the left half of the logic chain of evaluation, see Figure 1 and thus looks mainly at inputs and outputs and possibly short term / direct outcomes. Indirect outcomes and impacts, on the other hand, are the target of proper impact evaluation.<sup>17</sup>

Impact evaluation, monitoring and measurement are correlated but distinct activities. One can monitor and measure without evaluating, but obviously evaluation needs measurements indicators. These are required for collecting the relevant variables of an intervention and associating them with the corresponding outputs produced by processing the inputs. They are also needed to clearly identify the causality relation with the outcomes and impacts generated by the intervention, which can be called the 'treatment'.

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<sup>14</sup> Normally indicators are distinguished in 1) Direct indicators, which refer directly to the phenomenon they have been developed for; and 2) Indirect (or proxy) indicators, which are an indirect sign or measure that can approximate or can be representative of a phenomenon without the presence of a direct sign or measure. There can be several reasons to formulate indirect indicators: a) if the phenomenon of interest cannot be measured directly (this is particularly the case for more qualitative subjects, like behavioural change, living conditions, good governance, etc.; ); b) if the subject of analysis can be measured directly, but it is too sensitive to do so, for example level of income or, in the context of an HIV/AIDS intervention, 'safe sex'; c) if the use of an indirect indicator can be more cost-effective than the use of a direct one. In general terms, an indirect indicator may very well represent the right balance between level of reliability of information and the efforts needed to obtain the data.

<sup>15</sup> The objective is to compare what was planned with what was actually delivered, including verifying whether there is a gap between planned and actual output (i.e. number of premises with access to high speed internet) and calculating for instance input/output efficiency in the implementation (how well money is spent).

<sup>16</sup> See for instance: S. Khandker, G. Koolwal, and H. Samad, Handbook on Impact Evaluation: Quantitative Methods and Practices, Washington D.C: The World Bank and Oxford University Press, 2010, pp. 16-18.

<sup>17</sup> In this regard, it should be mentioned also that **evaluation and assessment** are often used interchangeably. However, they refer to different levels of investigation. Evaluation is a structured process that takes into account the context of the intervention and all the factors that are associated with its implementation. Whereas assessment can be seen as the measurement of progresses and it is one of the elements that go into an evaluation. In this perspective, despite the title of this report which reflects the goal of this research to build an Impact Assessment Framework, we can state that what we developed is more in line with a structured process of Impact Evaluation.

As Figure 1 suggests, between the administration of the 'treatment' (or policy intervention - e.g. ICT skills training course) and the outcomes (e.g. increase in the ICT capacities of the trainees) there are intervening variables which are not controlled by those who deliver the intervention. Therefore, whereas one could simply measure the outcomes, he/she cannot attribute it to the 'treatment' without the application of counterfactual experimental or quasi-experimental evaluation design. Alternatively, *ex-ante*, this could be done by inputting data - if available - into **economic modelling instruments**.<sup>18</sup>

In simple terms, a **counterfactual approach to policy evaluation** (experimental and quasi-experimental) identifies the causal effect of a treatment. For this purpose, we need to evaluate both the factual and the counterfactual outcome: e.g. what happens to Mr Smith after he takes the aspirin and what would have happened to him had he not taken the aspirin. However, once a treatment is given, we can no longer observe the counterfactual outcomes and we need to find ways to recover this unobserved variable (Shadish et al., 2002).

As we cannot observe counterfactual outcomes for interventions once they are treated, the only alternative is to observe the difference in outcomes between a treated group of individuals and an untreated group. But even in this case there could be a selection bias. For instance, if the treatment is an ICT skills training course, and individuals are simply invited to join, it is possible that those who join are the more motivated and more able and would have found a job even without the treatment. Hence, the comparison between those who joined and those who did not would yield a spurious and biased estimate of the treatment effect.

**Experimental design with randomisation (Randomised Controlled Trials - RCT)** eliminates the selection bias problem and solves the unobserved variable issue. This is done by comparing treated and untreated (i.e. control group) groups, where individuals are assigned randomly to one of these groups. Randomised Controlled Trials guarantee 'internal validity', namely that the difference in mean outcome (for example, the average level of employability/employment) between the treated (who took the course) and the untreated (who did not take the course) groups is a consistent estimator of the causal effect.

As an alternative to randomisation, **quasi-experimental (also known as observational) methods** use different identification strategies to recover the counterfactuals and to control for the selection bias. These methods are: Propensity Score Matching; Difference-in-Difference or Double Difference; Regression Discontinuity Design; and Natural Experiments.<sup>19 20</sup>

Monitoring, instead, is possible along all the logic chain of evaluation using **measurement indicators**. It is not possible, however, to causally attribute outcomes and impacts to the inputs invested and the outputs produced. It is certainly a less complex activity than evaluating, but in any case measurement indicators must be Specific, Measurable, Attainable, Relevant and Traceable (i.e. SMART).<sup>21 22</sup>

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<sup>18</sup> In economics, a model is a theoretical construct representing economic processes by a set of variables and a set of logical and/or quantitative relationships between them. An economic model is a simplified framework designed to illustrate complex processes, often but not always using mathematical techniques. Frequently, economic models posit structural parameters. Structural parameters are underlying parameters in a model or class of models. A model may have various parameters and those parameters may change to create various properties. In general terms, economic models have two functions: first as a simplification of and abstraction from observed data, and second as a means of selection of data based on a paradigm of econometric study.

<sup>19</sup> On this see for instance: Abramovsky L et al., 2011; Angrist, 1990; Angrist, 2004; Angrist & Evans, 1998; Angrist et al., 1996; Battistin et al., 2009; Hahn et al., 2001; Heckman et al., 1998; Heckman et al., 1997; Imbens & Lemieux, 2008; Lechner M, 2002; Lee & Lemieux, 2010; Rosenbaum & Rubin, 1983.

<sup>20</sup> They are described in details in the Annex to this report presenting the MIREIA eI2-IAF Toolkit.

<sup>21</sup> The acronym SMART summarises key criteria of measurement indicators. The following questions may be helpful in selecting indicators. **Specific:** Is it clear exactly what is being measured? Has the appropriate level of disaggregation been specified? Does the indicator capture the essence of the desired result? Does it capture differences across areas and categories of people? Is the indicator specific enough to measure progress towards the result? **Measurable:** Are changes objectively verifiable? Will the indicator show desirable change? Is it a reliable and clear measure of results? Is it sensitive to changes in policies and programmes? Do stakeholders agree on exactly what to measure? **Attainable:** What changes are anticipated as a result of the intervention? Are the result(s) realistic? For this, a credible link between outputs and outcome is indispensable. **Relevant:** Does the indicator capture the essence of the desired result? Is it relevant to the intended outputs and outcome? Is the indicator



Finally, measurement indicators can be used to assess interventions according to key **criteria of evaluation**. The most common are:

- **Efficiency**, which describes the extent to which time, effort or cost is used for the implementation of a given intervention. It is often used with the specific purpose of relaying the capability of a specific intervention to produce a specific outcome effectively with a minimum amount of waste, expense, or unnecessary effort.
- **Effectiveness**, which provides a measure of the outcomes produced by a given intervention in relation to the output generated by the intervention itself. It can be evaluated only when outcomes are available (i.e. some time after the completion of the intervention).
- **Sustainability**, which aims to define the capability of the intervention to produce structural changes in the conditions of its beneficiaries. Again, this can only be evaluated some time after the completion of the intervention itself, using indicators that allow us to provide evidence of any structural changes (e.g. in the employment status of the beneficiaries).

### 1.3. Structure of the report

**Chapter 1** has introduced the scope and objectives of the research project, and the methodological approach followed, and has clarified the key concepts that will be used in this report.

**Chapter 2** briefly illustrates the key findings of the literature review, discussing also the state of play in impact assessment in the field of eInclusion.

**Chapter 3** outlines the theoretical orientations that inform the development of the impact assessment framework, and the key principles that structure the conceptual model underpinning the MIREIA eI2-IAF.

**Chapter 4** presents the operational components of the framework and the guidelines for its application, allowing for self-evaluation of the impacts of eInclusion intermediary actors.

**Chapter 5** describes the key results of the testing of the MIREIA-eI2 IAF in the four case studies that 'piloted' the application of the methodological approach for impact assessment.

**Chapter 6** offers conclusions, outlining future research implications and policy recommendations.

**The complete MIREIA eI2-IAF** is presented in this **Main report**, accompanied by **the Annex: MIREIA eI2-IAF Toolkit**. This includes the practical tools comprising the operational framework and guidelines for self-evaluation, as well as the full set of measurement indicators and the 'question bank' developed.

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plausibly associated with the sphere of activity? **Traceable:** Are data actually available at reasonable cost and effort? Are data sources known? Does an indicator monitoring plan exist?

<sup>22</sup> In this respect, as we will describe in Chapter 4 and 5, the action research approach to the case studies we have followed was aimed at co-producing in practice a common set of indicators with different intermediaries in four countries in order to assess the validity of the operational tools of the proposed MIREIA eI2-IAF.



## 2. State of play

### 2.1. Key findings from review of literature on eInclusion

The study of eInclusion originated in the two fields of communications and development. The last decade has seen research emerging not only from academia but also from policy and action-oriented research institutes and international organisations. This is theoretically diverse and multidisciplinary in nature and not yet consolidated in terms of the implications it has for policy and practice.<sup>23</sup>

**ICTs can deliver support to excluded groups** in a way that enhances access to information and services, enables self-help and reduces dependency. ICTs can give people a voice and empower them to raise their concerns. As a result, it can also help policy makers to engage people in important local issues, or motivate individuals to access the local services to which they are entitled. More specifically, ICTs provide new channels and pathways that help to communicate messages more effectively and interactively, thus extending social and support networks for those who are isolated. They can improve wellbeing, increase self-esteem and confidence and help people to pursue new relationships (see e.g. Caplan, 2007; 1998; et al., 2002). Also, ICTs can enable service transformation and help address the problems facing socially-excluded people in a more efficient and effective manner (e.g. Hargittai, 2007). There are many examples of the use of ICTs for social inclusion, across several policy and service areas, and many initiatives have been developed to show inspiring examples of projects that use ICTs to enhance social inclusion and other aspects related to wellbeing.<sup>24</sup>

However, **those who suffer multiple disadvantages such as unemployment, low income, and poor educational attainment are also more likely to be digitally excluded** (e.g. Helsper, 2008). The deeper their social disadvantage, the less likely they are to have access to a computer, the Internet and other forms of technology such as mobile phones and digital TV. This form of technological exclusion can exacerbate existing social disadvantages. For example, those who are out of work and digitally excluded will have fewer opportunities to search for and find employment (Castells, 2000; Lin, 2002).

With specific regard to **employability** (as defined above – see §1.1) a recent literature review (JRC-IPTS, 2012)<sup>25</sup> shows that ICT skills or digital competence have become crucial, as they positively affect a number of individual factors relevant to employability. Firstly, there is an **increasing demand in the labour market for ICT skills**, which improves the employability of those who have and use them. **ICT skills also enhance people's aspirations** (Garrido et al., 2009), **and give them access to more and better jobs** (Eurofound, 2012) (i.e. more creative jobs where they can further develop their skills, enhance their career prospects and earn higher wages, EC, 2013).

Moreover, **ICT skills facilitate people's access to the labour market** as they help them to develop job search skills. People then search for jobs more effectively, and are unemployed for less time (Kuhn and Skuterud, 2004; Kuhn and Mansour, 2011; Hadass, 2003; Nakamura et al. 2009). Moreover, the probability that they will be discouraged in their job search is reduced (Ford, 2011). Indeed, **job search is facilitated by ICTs**, as they allow people to search a broader geographical area and company information. At the same time, Internet job search is associated with more intensive job search, as Internet supplements other methods (Parry and Tyson, 2008; Stevenson 2009), making the search more effective.

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<sup>23</sup> The more general research on the role of ICTs in advancing social and economic inclusion has been extensively reviewed in previous reports setting the initial foundations of this project, see: 'Literature Review of theories and explanations on the value and impact of eInclusion interventions and their dynamics' (Deliverable D1.1, September 2012 – available at: [http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/documents/MIREIA-D1.1\\_FINAL-DRAFT\\_27092012.pdf](http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/documents/MIREIA-D1.1_FINAL-DRAFT_27092012.pdf)) and 'Literature Review of policy, methodologies and indicators on digital inclusion, employment, education and social inclusion/welfare' (Deliverable D2.1, September 2012 available at: [http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/documents/MIREIA-D2.1\\_FINAL-DRAFT\\_27092012.pdf](http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/documents/MIREIA-D2.1_FINAL-DRAFT_27092012.pdf)). This chapter only selective pinpoint key highlights from these reviews that are relevant for the construction of the MIREIA eI2-IAF.

<sup>24</sup> For a review of practices on ICTs for inclusion see: <http://is.jrc.ec.europa.eu/pages/EAP/eInclusion.html>

<sup>25</sup> See: de Hoyos, M., Green, A., Barnes, S., Behle, H., Baldauf, B., and Owen, D. (2012). 'Literature Review on Employability, Inclusion and ICT, Report 2: ICT and Employability', (Eds. Centeno, C. and Stewart, J.) JRC Technical Report, European Commission, JRC Technical Report, available at: <http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=5999>

From a complementary perspective, **ICT skills provide opportunities for people to develop social networks**, which allow them to build 'weak ties' (Granovetter, 1973; 1982; Wellman et al., 2001), of key importance for job search. Furthermore, there is evidence that **developing ICT skills and competence empowers individuals**. This helps them to develop self-confidence, self-efficacy, and other skills, such as transversal skills (e.g. social networking, collaboration, problem solving, language skills) and eLearning skills, all useful for employability. Finally, **the acquisition of ICT skills fosters further skills development**, motivating ICT learners to pursue other types of education (Punie et al, 2009).

In this respect, **social network literature** shows that as tie strength increases linearly from weak to strong, the motivation to communicate grows. The number and types of information and resource exchanges also increases, as does the amount of support communicated (e.g. Buskens, 2002; Elison et al., 2007; Scott, 2002; Wellman et al., 2001; Rainee and Wellman, 2012). In this report, it is thus argued following Haythornthwaite (2002) that the use of ICTs mediated by intermediary organisations can influence individuals connected by strong ties to adapt and expand their use of ICTs. More importantly, however, it can add the means and opportunities to communicate or engage, thus impacting positively on weak ties and related networks.

The literature review carried out on eInclusion intermediaries also shows the wide diversity of actors categorised as intermediaries and the different names given to them. For the purpose of this research, **eInclusion intermediary actors** are defined as *'Public, private and third sector organisations which intentionally address social inclusion goals through ICTs or promote the use of ICTs to enhance the socio-economic inclusion of marginalised and disadvantaged groups and of people at risk of exclusion'*.<sup>26</sup>

The findings from the literature review, which analyses **the role and impact of eInclusion intermediaries** (Garrido et al., 2012), outline how eInclusion intermediary actors work and the different impacts that their work can be linked to, under appropriate environmental conditions. It highlights the fact that the eInclusion arena includes several different types of actors with varying goals, facilities and services; a range of target populations with different backgrounds, needs, and motivations; numerous contextual influences; and a multitude of potential impacts.

Thus, in order to understand the impacts of eInclusion intermediary actors we need to know how they work, what their mission is, and what programmes and services they provide. We also need to know what type of organisation they are, and their ownership and business models. Ownership and business models and type of organisation are strongly embedded in the institutional capacity of the eInclusion intermediary actor: i.e. they affect the ability of an institution to exist and to carry out planned activities (and subsequently to have impacts). Mission and programmes and services provided are more directly related to their impacts on the target populations in the sense that they shape those impacts (Garrido et al., 2012).

In this respect, depending on the services provided, **eInclusion intermediary actors generate diverse types of impact** on their own institutional capacity and on digital inclusion, social inclusion, and employability of the target groups they address. The first, on institutional capacity, refers mainly to the organisation's sustainability, in particular financial and social sustainability, since this indirectly affects user impacts. The digital inclusion impacts include technology access; digital literacy (e.g. basic ICT skills, ICT practitioner skills, and more advanced ICT skills); and information appropriation. The most common impacts on social inclusion reported by the literature include: lifelong learning; social connections; civic engagement; and wellbeing (Garrido et al, 2012). With regard to employability, most common impacts reported include: people acquiring new job-related skills, increased access to jobs and training opportunities, and contact with employers, better income, and opportunities for lifelong learning.

Finally, the literature identifies a set of **external factors that can shape whether or not desired impacts are achieved**. These can be summarised as: factors at the organisation level (relevance of training design and training strategy for users, organisational partnerships, available resources, community

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<sup>26</sup> See Torrecillas, C., Centeno, C., & Misuraca, G., (2014) Characterisation and Mapping of eInclusion Intermediary Actors in the EU27. European Commission, JRC Science and Policy Report Series. Luxembourg Publications Office of the European Union, available at <http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=7220>

buy-in, state of technological infrastructure), at the individual level (perceived ease of use and usefulness of ICTs, motivation, social influence), at the social level (demographic characteristics, social connections, availability of affordable health care and housing), and at the economic level (labour market dynamics, labour demand for skills, discrimination practices, quality of jobs available).

The literature review indicates that factors affecting social exclusion are often entangled, and compound exclusion across different fields of social resources is what makes digital inclusion interventions so complicated. To address this issue, the literature emphasises the importance of identifying the target population's needs in terms of social exclusion before implementing any intervention.<sup>27</sup>

The findings from the literature review were crucial in helping us to better understand the role and impact of eInclusion intermediary actors so to shape an appropriate assessment framework able to capture their impacts.

## 2.2. State of the art in assessing impacts of eInclusion

The literature review also looked specifically at evaluation approaches and methodologies developed to assess eInclusion impacts. This review was complemented by an analysis of which evaluation methods are used in practice by eInclusion intermediaries to assess the impacts of their interventions. Policy initiatives promoted in this respect were also analysed. This section synthesises these analyses of literature, practice and policy in assessing impacts of eInclusion.

First of all, as seen in §2.1, the **literature review** carried out addressed specifically the role of eInclusion intermediaries, in order to provide a robust understanding of the many goals, activities and different *modus operandi*, that had to be considered in developing the MIREIA eI2-IAF. Although a lot of the research on eInclusion in general sets out to measure impacts, in reality studies often end up with some measures of usage and analysis of why expected impacts were not achieved (Sey & Fellows, 2009, 2011). Thus we know more about the factors that seem to inhibit impact attainment, but not necessarily whether impacts would in fact happen if all those factors were addressed. A large proportion of available commentary on eInclusion intermediaries is still based more on perceived potential than on demonstrated facts (Garrido et al, 2012).

While the general value of having meaningful access to ICTs is generally undisputed, the idea that particular methods of providing such access are superior to others is still up for debate, and the ability to make judgments is limited by the dearth of solid evidence. The available data tends to be based on disparate, isolated, often small-scale, and highly contextualized studies, making it difficult to identify valid or reliable trends (Misuraca et al, 2013). Nevertheless, some common elements that emerged from the **review of practice** can be summarised as follows:

- Comprehensive evaluations are rare: seemingly successful projects, with good anecdotal evidence of success, are often difficult for others to justify investment in.
- Projects often produce softer, less tangible benefits in the short and medium terms that are difficult to justify against short-term implementation costs.
- Projects can contribute towards much more tangible longer-term benefits (e.g. improving employment) but it is difficult to demonstrate the shorter-term contribution of projects towards these longer-term objectives, and disentangle them from other complementary initiatives.
- There is a generalised difficulty in clearly expressing the benefits of projects and understanding their contribution to wider socio-economic impact.

Furthermore, although several impact assessment methods are currently being developed, the data gathered by the initiatives are generally not sufficiently robust to evaluate their outcomes and to validate their impact. For instance, out of more than 1000 eInclusion initiatives surveyed in 2008-2009, few were able to provide cost data. Only about 50 (mostly concentrated in the UK) had measured outputs and only

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<sup>27</sup> This issue will be addressed in Chapter 4 of this report which discusses the Operational Framework and in the Annex to this Report, which presents the MIREIA eI2-IAF Toolkit.

10 strictly defined outcomes (Codagnone, 2009, p. 41).which included the most innovative and successful ones (De Luca, et al., 2010, p. 17). More recently, building on a compendium of 11 approaches in the domain of ICT for development projects provided by Heeks & Molla in 2009, on the basis of a review of 81 impact assessment 'methods' compiled for JRC-IPTS (Cullen, et al., 2012), and the subsequent analysis of 11 most relevant' examples of these methods, **three broad categories of methods used in practice** have been defined, as follows:

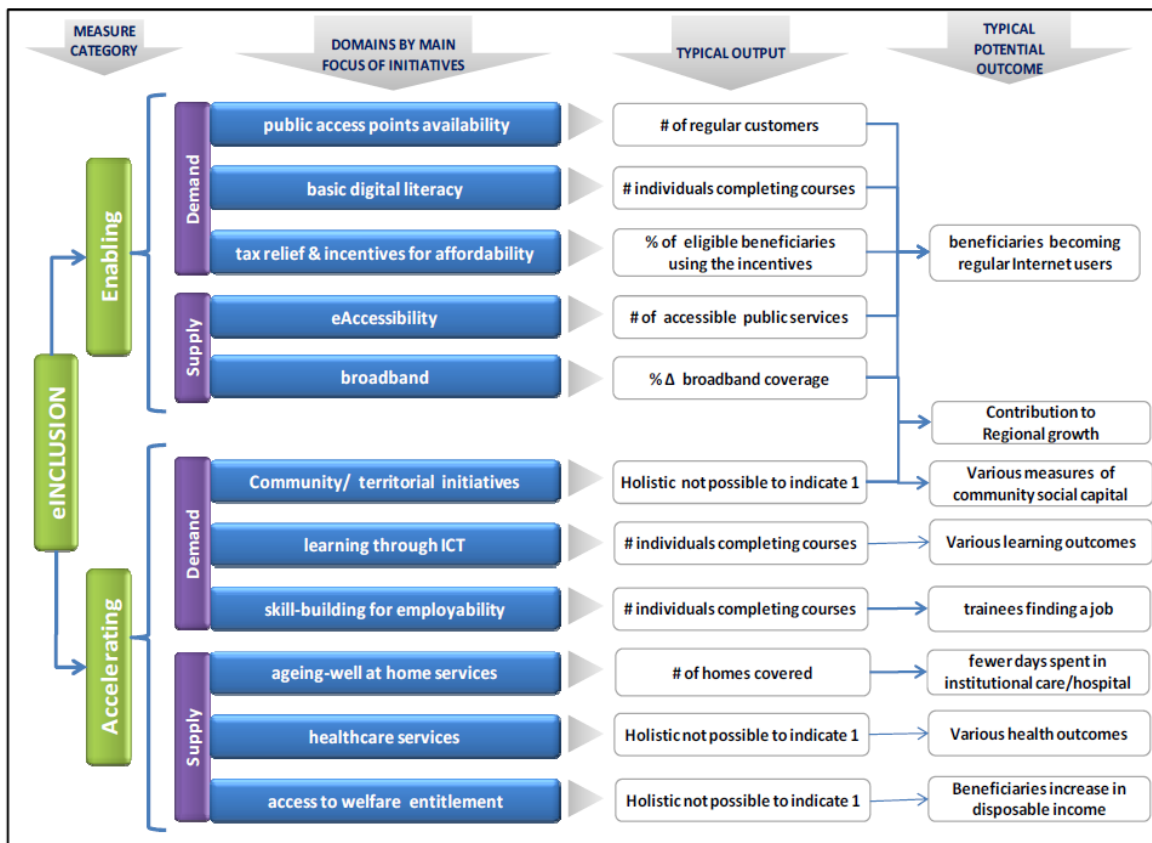
- Impact Assessment methods that evolved through the activities and interactions of 'communities of practice' that are based in the ICT 'grass-roots' world of telecentres, public Internet access points and other similar organisational forms;
- Impact Assessment methods that aims to reduce impact measurement to a single metric, often based on social return on investment (SROI);
- Impact Assessment methods that focus on 'outcome identification'. This typically emphasises evidence-based practice, using participatory and collective 'sense-making' to define and apply outcomes and impacts measurement.

**Very few and scattered scientific impact evaluation studies are available on eInclusion** (Amariles, et al., 2006; Angrist & Lavy, 2002; Codagnone, 2009; Gomez & Reilly, 2002; Machin, et al., 2007; Wattegama & Kapugama, 2010b). One of the most comprehensive attempts, the EC funded **Vienna Study**<sup>28</sup> (Codagnone, 2009) reviewed the state of the art and identified 10 different areas of eInclusion interventions. It also defined about 50 indicators of output and outcome, proposed a theoretical model of all potential outcomes of eInclusion derived indirectly, applying by analogy evidence from economics (see **Figure 2**). However, due to lack of data, it was only possible to empirically demonstrate with an econometric model that ICT skills increase employability and wages, using data available only in 1 country (Italy).<sup>29</sup>

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<sup>28</sup>. See '*Inclusive Innovation for Growth and Cohesion: modelling and demonstrating the impact of eInclusion*' also known as '*Vienna Study*', as it was launched by the European Commission, DG Information Society and Media with the aim of providing input to the Ministerial Debate on eInclusion that took place in occasion of the Ministerial Conference on eInclusion held in Vienna (30 November- 2 December 2008).

<sup>29</sup> Other scientific analyses worth mentioning briefly are: 1) a study that using the circumstances of a funding of computers in some Israeli schools on the base of a 1994 State Lottery (meaning that there were naturally and randomly a target and control group), evaluated that the availability of computers increased teachers' use of computer-aided instruction but this did not appear to have impact in educational benefits as measured by higher test scores (Angrist & Lavy, 2002). 2) a study that exploiting a change in the rules governing ICT funding across different school districts in England, adopted a natural experiment strategy to identify the causal impact of ICT expenditure on pupil outcomes (Machin, McNally, & Silva, 2006). The findings suggest a positive impact on primary school performance in English and Science, though not for Mathematics.



**Figure 2 – The conceptual framework of the EC funded Vienna Study**

Source: Codagnone, 2009

On the other hand, there is a growing number of very **practical and pragmatic business cases and ex ante assessment methodologies**, which produce educated guesses of potential benefits. For instance, the study on 'Benchmarking of eInclusion impacts' funded by the Commission (Capgemini and IDC, 2012) produced a few self-assessment tools and generic indicators that could be applied to a diverse range of cases. In the UK, consulting companies produced very pragmatic and simplified frameworks and some ex ante estimates of impact of digital inclusion for the Digital Champion (e.g. PriceWaterHouse&Coopers 2009). A similar approach for the UK Online Centres was developed by Fresh Minds (2008), and UK academic researchers have produced more solid frameworks and estimates (Helsper 2008; LSE Public Policy Group & Oxford Internet Institute 2010). In the US and Australia, a similar consulting style approach and educated guesses have been also developed (AT Kearney, 2009; Econsult Corporation & US Digital Impact Group, 2010).<sup>30</sup>

With specific regard to modelling, so far there has been only one attempt to scientifically model the impacts of eInclusion (Bentivegna & Guerrieri, 2010). This study first constructed a general index (**European Index of Digital Inclusion, EIDI**)<sup>31</sup> which was input together with other data and causal

<sup>30</sup> See: AT Kearney, 2009; Capgemini 2012; Digital Inclusion Team, 2010; Econsult Corporation & US Digital Impact Group, 2010; Fresh Minds, 2008; Heeks & Molla, 2009; Helsper, 2008; LSE Public Policy Group & Oxford Internet Institute (OII), 2010; PriceWaterHouse&Coopers 2009; Tinholt, et al., 2012. These contributions are mostly concerning the UK, USA, and Australia, they are anyway very context specific (often responding to a specific client request), and do not provide a comprehensive and tailored (for intermediaries) set of measurement instruments. Moreover, the benefits they calculated are far from being based on counterfactual methods.

<sup>31</sup> The index was intended to monitor and capture the level of advancement of digital inclusion in the EU27 and in all member countries and compare progress made between 2004 and 2009. The composite and longitudinal nature of the EIDI – based on the indexes measuring the sub-dimensions of access, usage and impact from 2004 to 2009 – should have contributed to individuate the main obstacles to close the digital exclusion and to monitor progress that have been made in terms of the Riga targets.



parameters into a Computable General Equilibrium (CGE) Model (i.e. the Ifs model). The model was run under different policy scenarios to forecast the potential impact of eInclusion. Due, however, to the lack of more granular micro and meso data, the results of the model were general and generic and provided no insights whatsoever for practitioners developing eInclusion initiatives in the field.

Furthermore, an additional element to consider is that despite the support given to government, and the private and third sectors to tackle the risks and make the most of the opportunities of ICTs for inclusion, several common **barriers to implementing impact assessment** often emerge. These include:

- Evaluation capacities are generally under-developed, and the availability of limited resources (both financial and human) is perceived as a major barrier to implementing impact assessment.
- There is no established 'evaluation culture' and the evaluation that is carried out reflects differing methods, classifications systems, and scarcity of data.
- Projects are cross-cutting often benefiting multiple stakeholders; and it is difficult to evaluate impacts of interventions with respect to the various effects they are contributing to.

Table 1 summarises a recent analysis of availability of data and evidence in the eInclusion field (Misuraca et al, 2013) and provides an updated overview of the state of the art in impact assessment. This shows that, probably because there are disparate areas of intervention, **measurement of input and output in eInclusion is largely under developed**, not only at macro and meso level, but also at the level of single interventions. Moreover, given the fragmented nature of the field and the lack of measurement at micro level, not surprisingly there is no global benchmarking of eInclusion output. For outcomes, there are only the Eurostat statistics on Internet usage and digital skills, but these cannot be used for the specific targets addressed by the intermediaries.

**Table 1 – Synthetic state of the art on availability of data and evidence on eInclusion**

	Measurement indicators	Available data/evidence
Input	<ul style="list-style-type: none"> <li>• ICT equipment and other fixed costs</li> <li>• Personnel costs</li> <li>• Other costs (awareness, reaching out, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of cost data at macro, sectoral, and micro level</li> </ul>
Output	<p>Exemplificative</p> <ul style="list-style-type: none"> <li>• # of operating Telecentres (&amp; users per centre)</li> <li>• # trained participants to courses</li> <li>• Broadband availability/cost in a given area</li> </ul>	<ul style="list-style-type: none"> <li>• No international benchmarking except</li> <li>• Lack of systematised statistics on Telecentres and other eInclusion initiatives outputs</li> </ul>
Outcome (direct / indirect)	<p>Exemplificative</p> <ul style="list-style-type: none"> <li>• Internet usage (targeted group / area)</li> <li>• Digital skills (targeted group)</li> <li>• Users of online welfare services (targeted group)</li> </ul>	<ul style="list-style-type: none"> <li>• Eurostat on Internet usage and digital skills but no micro data on targeted groups</li> <li>• Scattered data on initiatives (and mostly only for UK) and direct / indirect outcomes</li> <li>• A few emerging methodologies with little application (mostly for measurement)</li> </ul>
Specific Impact	<p>Exemplificative</p> <ul style="list-style-type: none"> <li>• Employability (targeted group)</li> <li>• Educational achievements (targeted group)</li> <li>• Access to welfare benefits (targeted group)</li> <li>• Economic development (targeted group)</li> </ul>	<ul style="list-style-type: none"> <li>• A few emerging methodologies with little application (mostly for measurement)</li> <li>• A few counterfactual studies</li> </ul>
Global Impact	<ul style="list-style-type: none"> <li>• Employment</li> <li>• Social inclusion</li> <li>• Social capital</li> <li>• Reduced social cost</li> <li>• Spill over on ICT sector</li> </ul>	<ul style="list-style-type: none"> <li>• One modelling simulation</li> <li>• Several deterministic estimates</li> </ul>

Source: adapted from Misuraca et al, 2013



**The analysis leads us to conclude** that

- There is recognition that **evaluation and impact assessment in the field of eInclusion is still relatively under-researched** and those studies that have been undertaken have frequently been methodologically weak.
- Impact assessment is still largely perceived as a 'donor/funder requirement' rather than a 'strategic management tool'. As a consequence, **impact assessment is generally not included in the design of interventions**.
- **There is a lack of accepted and tested methods, tools and indicators** to assess the social and economic impact of ICT-driven initiatives oriented to promote social and economic inclusion and employability in particular.

The results of the review of the literature and practice with regard to assessment of impacts on eInclusion confirm the already widely-held view that **there is a need for more rigorous and tested impact assessment methods and tools that at the same time reflect the context, constraints and needs of grass-roots organisations**.



### 3. Conceptualising MIREIA eI2-IAF

#### 3.1. Theoretical orientations

We base our explanation of the multi-dimensional construct of eInclusion and its interactions with the role of intermediary organisations on a variety of theories and frameworks, each of which underscores important dimensions of our conceptual model.

We used **ecological theory** to explain how impact and impact factors could be operationalised at various levels of analysis. In particular, we have referred to the distinction made by Bronfenbrenner on ecological systems (Bronfenbrenner, 1979) between macro, meso/exo and micro.<sup>32</sup> This is required since an additional layer of complexity is derived from the focus of the research on the specific role played by **eInclusion Intermediaries as 'catalysts / multipliers or amplifiers of impacts'** due to their nature and characteristics. This theoretical approach appears to be well suited to providing an insight into the interlocking or nested environments within which eInclusion intermediaries operate.

The MIREIA eI2-IAF is also rooted in the epistemological orientations of the **Capabilities Approach** developed by Sen in the late '90s (Sen, A. 1999, 2000). The inclusion or exclusion of individuals and groups within society is shaped by their relative 'functionings', namely their relative capability to function and achieve desirable outcomes such as finding a job. These relative 'functionings', depending on individuals' possession of resources and on their social relations, at the same time shape and are shaped by the digital means they possess.

With regard to the **link between digital and social inclusion**, several theoretical models and hypotheses have been advanced about how the specific forms of digital exclusion and social exclusion affect each other (Helsper, 2012; Helsper & Galacz, 2009; van Dijk, 2005; Warschauer, 2004; Zillien & Hargittai, 2009). In his examination of the digital divide, van Dijk (2005) advanced a conceptual division of access into four specific consecutive stages of access to digital technology. These sequential stages are: 1) motivational access (motivation to use digital technology); 2) material or physical access (possession of computers and Internet connections or permission to use them and their contents); 3) skills access (possession of digital skills: operational, informational and strategic); and 4) usage access (number and diversity of applications, usage time).

However, as Helsper (2012) points out, Van Dijk does not classify specific types of engagement (what he calls 'usage access') in these terms. Thus, Helsper (2012) further expanded the van Dijk conceptualisation through the development of a classification of **digital fields of exclusion** that mirrors the classification of four offline fields: i.e. personal, social, cultural and economic (Helsper, 2012).

The model developed by Helsper does not start from one specific context but from a holistic conception of everyday life that includes work, leisure, family and other environments. It relies less on people's own interpretation of whether they are included or not. Instead it examines objectively what individuals actually do in the four fields of digital inclusion once access, skills and attitudes have been accounted for.<sup>3334</sup>

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<sup>32</sup> According to (Bronfenbrenner, 1979) five environmental systems with which an individual interacts affect children development: **Micro-systems** i.e. the interpersonal interactions of a child at the family level; **Meso-systems** i.e. the interrelationship in a slightly wider environment (home and school); **Exo-systems** i.e. the interrelationships within settings in which the child does not participate, but which have a direct bearing on parents and other adults who interact with the child. These may include the parental workplace, school boards, social service agencies etc.; **Macro-systems** are instead 'blueprints' for interlocking social forces. They provide the broad ideological and organisational patterns within which the meso- and exo-systems operate.

<sup>33</sup> Helsper (2012) argues for a theoretical model that hypothesises that resources in offline fields will mainly influence corresponding digital fields and vice versa. Her model accommodates the fact that exclusion from one of the four fields – personal, social, cultural and economic – may not be perceived as a disadvantage. For example, someone can be excluded from entertainment resources (e.g. gaming, watching videos, listening to music) in the personal field but this could be perceived by that individual as a relatively low disadvantage if none of their peers engages in this way. Or those who do not engage online civically (i.e., a resource in the social digital field) in a society where there is low civic engagement may not perceive themselves as disadvantaged even if objectively they are excluded. Moreover, this model is not platform-specific, in the sense that the

This approach is in line with the findings of Witte and Mannon (2010), who note that an important issue underlying the link between digital and social exclusion is not determined by whether someone has the motivation, access and skills to use digital technology. Instead Witte and Mannon focus on whether access and use of digital technology enhances the life of an individual.

The importance of these theoretical models for the MIREIA-eI2-IAF is that eInclusion intermediaries use a variety of both digital and offline interventions to enhance social inclusion and employability. Interventions have an impact in offline and digital domains across several socio-economic fields, including economic participation in society and employment. Thus, it is possible to assume that one of the effects of successful eInclusion interventions would be an increased impact across various fields.<sup>35</sup> Therefore, the design and evaluation of policies or interventions around digital inclusion should make sure both relevant digital and social fields of impact are measured.

Moreover, **institutional theory** helps us to understand the role of intermediary actors and to examine their performance. The analytical elements outlined in this theory allow the researcher to understand an intermediary's distinct qualities at the organisational or institutional level in terms of how it functions, what role it plays in the community it serves, the resources available to it, and how it manages change and adapts itself to new circumstances. It is a useful theory for studying digital inclusion projects because the ways in which institutions operate has a direct bearing on the long-term value, sustainability, and scalability of digital inclusion (Madon, et al., 2009, 97).<sup>36</sup>

In order to operationalise the application of institutional theory in our research however, we need to combine it with **social constructivist approaches** (Berger & Luckman, 1966; Schmidt & Lee, 2008).<sup>37</sup> This is especially useful in understanding how social phenomena develop in particular social contexts, assuming that interactions among various stakeholders are done with the understanding that their respective perceptions of reality are related and, as they act upon this understanding, their common knowledge of reality becomes reinforced. Socially constructed reality is seen as an on-going, dynamic process; reality is reproduced by people acting on their interpretations and their knowledge of it. This suggests that for the MIREIA eI2-IAF and its instruments to be valid and sustainable, the practitioners' views need to be taken fully into account.

Summing up, the conceptual model underpinning the MIREIA eI2-IAF is structured to capture how far a given intervention contributes to preventing exclusion and to promoting social and economic inclusion (i.e.

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Internet is used to exemplify a classification of digital fields, but the corresponding fields framework proposed would be applicable to the use of ICTs no matter what the platform through which engagement takes place is.

<sup>34</sup> Helsper (2012) asserts that one argument for the lack of evidence of impact with some interventions is that researchers have been focusing on the 'wrong' fields. In education, an example of this is when researchers expect an increase in performance (the economic field) through the introduction of ICTs while the real impact is on self-esteem (Kirkup & Kirkwood, 2005), which pertains to the personal field. Or perhaps the introduction of ICTs did not focus on those digital resources that might have had the most impact. It is unlikely, for example, that using resources such as online banking will increase the offline social resources of the person. It is more likely that a person who uses social digital resources, such as social networking applications, will increase their offline social resources (Wellman et al., 2002).

<sup>35</sup> Helsper (2012) exemplifies this by highlighting that the socially excluded who lack resources in particular offline fields are also less likely to engage with resources in the corresponding digital fields (van Dijk, 2005). For example, it has been shown through the analysis of World Internet Project data that those with the lowest levels of education (i.e. excluded from the economic field) were the furthest removed from using the Internet for educational and other economic purposes even when they engaged with entertainment-related personal field resources online and had similar levels of access and skills (Helsper & Galacz, 2009). This kind of evidence is confirmed also by other researchers (e.g. Zillien & Hargittai, 2009).

<sup>36</sup> With specific regard to **institutional theory**, two main perspectives can be distinguished: one is developed into the tradition of research of economics, and the other into the tradition of research of sociology. The New Institutional Economics is a theoretical perspective common to different approaches, among which those more relevant for our research are the transaction cost theory (Williamson, 1975, 1985, 1996) and the new institutional theory (North, 1990; Rowlinson, 1997; Rutherford, 1996). Both approaches share the idea that institutions and institutional (legal) assets, through the influence of economic micro-behaviours of single agents and single organisations, also strongly affect economic performance, inter-organisational relationships, and the form and path of innovation diffusion.

<sup>37</sup> **Social constructivism** is a sociological and psychological theory of knowledge that considers how social phenomena develop in particular social contexts. Within constructionist thought, a social construct is a concept or practice, which may appear to be natural and obvious to those who accept it, but in reality it is an invention or artefact of a particular culture or society.

integration and active participation in and contribution to society through employment and economic activity). The following **principles have been taken into account** in its construction so that it:

- considers several levels of interactions; integrating the categories of micro-meso-macro derived from ecological theory;
- is embedded into the capability approach that considers both tangible and intangible benefits;
- covers the different corresponding fields between digital and social inclusion; influencing the personal, social, cultural and economic conditions of the individual beneficiaries of the interventions;
- reflects the organisational and institutional context of interactions; by taking into consideration the dynamic nature of the interaction between eInclusion intermediaries and their social, political and economic contexts, and also the roles of relevant stakeholders in shaping this interaction.
- pays attention to socially-constructed perceptions and practices; taking into appropriate consideration the perspectives and experiences of practitioners and beneficiaries of interventions.

### 3.2. Conceptual model

The MIREIA eI2-IAF is grounded on the logic framework for evaluation and impact assessment of the European Commission (European Commission, 2004, 2009a, 2009b). It has been advanced taking into consideration concepts from evaluation of cohesion policies, specifically adapted to eInclusion interventions, building in part on the EC-funded Vienna Study (Codagnone, 2009). In particular, the **MIREIA eI2-IAF** has been developed in order to address three different dimensions of analysis (micro; meso; and macro).

- **The micro level** considers the benefits of the intervention at the level of individuals or groups of individuals (e.g. participants in an ICT training course, beneficiaries of specific ICT-enabled service, etc.);
- **The meso level** considers the benefits of the intervention at the level of intermediary actors, aggregating the outcomes and impacts of a set of interventions to a broader set of target groups.
- **The macro level** looks instead at benefits from a policy and broader socio-economic perspective. At this level of analysis, impacts are defined as the effects that eInclusion interventions generate on society and the economy as a whole.

The conceptual model underpinning the MIREIA eI2-IAF is illustrated in Figure 3, which provides an overview of the key elements to be considered when conducting impact assessment. In practice, the model is based on the **needs** of the target groups and the requirements identified to support those **target groups as beneficiaries** of the interventions. These needs are included as a key component in the approach in order to integrate the development of the **missions** guiding the interventions of the intermediaries and the **objectives** of their activities. These are generally coherent with policies designed to improve the socio-economic situation of a specific geographic area of intervention and/or group of population.

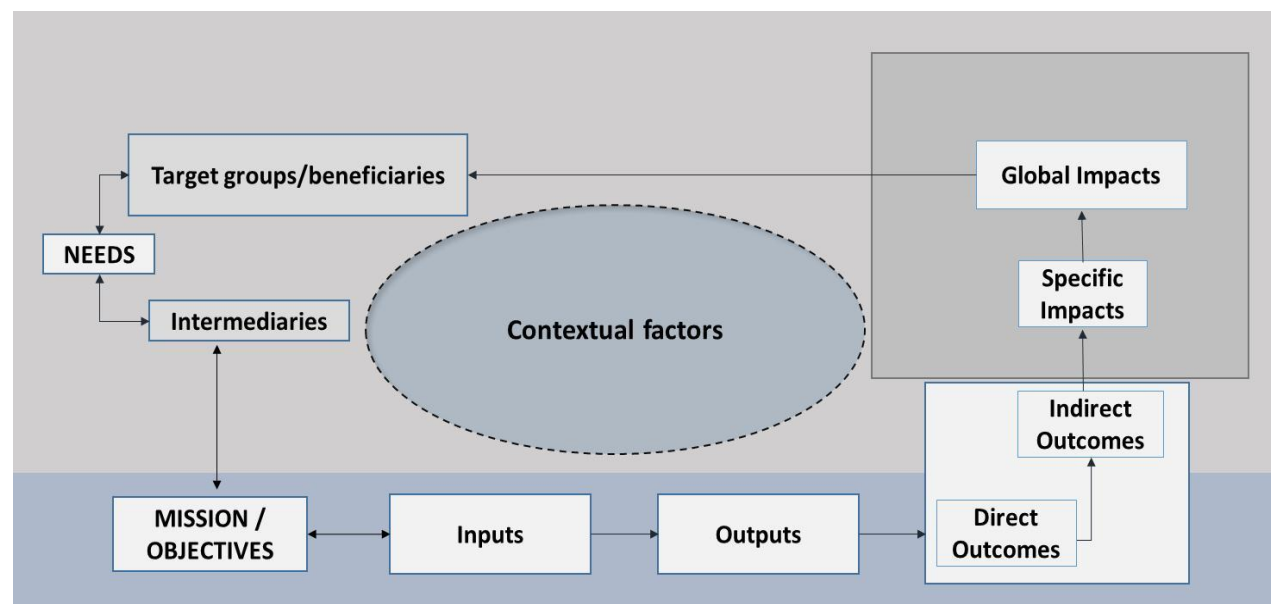
The MIREIA eI2-IAF is intended to be a **self-assessment tool**. Intermediaries may recognise the needs of target groups as part of their mission, but their activities may also be influenced by other stakeholders or by changes in policies. The primary focus of the MIREIA eI2-IAF is to better understand the relationship between eInclusion intermediaries and the impacts they achieve through specific interventions. However, intermediary activities take place within a wider policy environment. Thus, local, regional, national and European inputs and scales or tiers of analysis need to be considered.<sup>38</sup>

In this respect, the conceptual model emphasises that eInclusion Intermediary interventions are influenced and in part determined by other external factors that affect their activities. Thus **contextual factors**

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<sup>38</sup> Generally policymakers at lower tiers are influenced by policies articulated by higher tiers (e.g. local and regional administrations will be affected by national or EU policies, national policies will be influenced by EU targets, etc.).

should be taken into accounts as these can exacerbate or dissipate the effects of intermediaries' interventions. In theory, the eInclusion strategy process linking policy impacts to project objectives is relatively easy to describe. In practice, however, it is not so easy to assess the impacts produced by eInclusion interventions developed by intermediaries, and how these impacts are related to the impact of eInclusion policy implemented at higher levels.



**Figure 3 – The conceptual model underpinning the MIREIA eI2-IAF**

The model breaks down further the monitoring and evaluation process of policy interventions into its constituent elements **of inputs, outputs, outcomes** (direct and indirect) **and impacts** (specific and global).

The conceptual model thus suggests that in order to investigate the impacts of eInclusion intermediaries, eInclusion interventions must be evaluated at all levels: i.e. not only at **micro level**, but also how the sum of interventions carried out by an eInclusion intermediary, aggregated at a **meso level** of intervention, contribute to achieving specific policy impacts at **macro level**. This means that, for instance, eInclusion intermediaries should first of all collect solid and detailed data about inputs, outputs and direct outcomes for each of their interventions and aggregate them in order to have a clear picture of the portfolio of interventions they are conducting. Moreover, they should gather data about the socio-economic context in which their interventions are placed. This will help them to find a 'baseline' for the evaluation of their interventions and to understand how these contribute through direct and indirect outcomes to achieving specific and global impacts. While the operational framework of the MIREIA eI2-IAF will be the focus of Chapter 4, it can be anticipated here that, in order to assess the contribution of eInclusion Intermediary activities on these three levels of analysis (i.e. micro, meso, macro) it is required: to identify and categorise the various **typologies of interventions** that can be labelled as eInclusion interventions of Intermediary actors; to define the characteristics underpinning them, and to identify the effects they generate in the specific context of reference.<sup>39</sup>

By defining typologies of eInclusion intermediaries' interventions and identifying **impact dimensions** that serve as proxies for measuring the effects of eInclusion interventions, a comprehensive picture of the potential impacts of these interventions on strategic and policy goals can be provided.

<sup>39</sup> As discussed in § 1.2), it should be underlined again that many factors contribute to socio-economic inclusion and the relationships among the various factors are characterised by a non-linear process, and a causality link is hard to be demonstrated.

Table 2 provides an overview of common typologies of elclusion interventions and their possible impacts (specific and global), particularly on **employability**<sup>40</sup> which is the focus of the operational framework of the MIREIA eI2-IAF as discussed in the next paragraph.<sup>41</sup>

**Table 2 – Typologies of interventions and related expected impacts**

Typologies of Interventions		Examples of Specific Impact indicators	Global Impact Indicators
Skilling	▪ Basic Digital literacy training courses ('medium-related' skills including operational and formal Internet skills)	- # of participants/beneficiaries that have actually found a job (ICT related)	- % of increase in local economic development (i.e. GDP growth) in the reference context - % of increase of employment rate in the reference context (ICT related and not ICT related)
	▪ Advanced ICT skills development (both 'medium-related' and 'content-related' skills including information and strategic internet skills)	- # of participants/beneficiaries that have actually increased their wage and/or job position	
	▪ Awareness raising interventions for promoting ICT career	- # of university degrees leading to ICT careers obtained by the participants to the awareness action	
	▪ ICT Skills certification (based on standards requested by the ICT sector)	- # of ICT related enterprises and business activities derived from projects having completed the intervention	
Empowerment	▪ Intervention aimed at improving entrepreneurship and self-employment	- # of projects developed by the intervention that have done financial investment devoted to ICT related social innovation	
	▪ Intervention on promoting ICT-enabled social innovation	- # of participants to the social innovation project developed by the intervention that have actually increased their income/improved their Job conditions	
	▪ Intervention aimed at promoting Internet use for job searching (e.g. training course)	- # of participants to the intervention who became regular users of public or private Internet centres of the intermediaries that have actually found a job (ICT related and not ICT related)	
	▪ Intervention aimed at promoting the use of Internet centres for job searching	- # of participants to the intervention who became regular users of public or private Internet centres of the intermediaries that have actually increased their wage and/or job position	
	▪ Intervention aimed at increasing competitiveness of SMEs and micro organisations through ICT use	- # of SMEs or other micro-organisations having successfully participated to the intervention that have increased in productivity	
Networking	▪ Intervention for increasing Internet use for job searching	- # SMEs or other micro-organisations having successfully participated to the intervention that have increased their competitiveness	
	▪ Awareness raising Intervention for promoting SMEs access and use of ICT networks	- % of increase in productivity of SMEs or other micro-organisations due to increased access and to the use of ICT networks	
Job Placement	▪ Intervention combining ICT training and Job placement activity	- % of increase in competitiveness of SMEs or other micro-organisations due to increased access and to the use of ICT networks	
	▪ Intervention for increasing Internet use for job searching	- # of SMEs and other micro-organisations participating to the awareness intervention and that have increased their productivity due to improved internal ICT capabilities	
	▪ Awareness raising Intervention for SMEs about the importance of ICT skills for competitiveness	- # of SMEs and other micro-organisations participating to the awareness intervention and that have increased their competitiveness due to improved internal ICT capabilities	

<sup>40</sup> In this regard, considering the main typologies of elclusion interventions and dimensions of impacts identified when developing the draft proposal of impact assessment framework, it has been decided, in collaboration with experts and stakeholders that the MIREIA eI2-IAF should look more specifically at the contribution that elclusion intermediary interventions can generate in terms of 'Employability'. See: JRC-IPTS, Misuraca, G. and Torrecillas, C., 2012., 'Methodological approach for developing the MIREIA eI2-IAF' – Interim report D2.2, December 2012 and Reports of the JRC-IPTS MIREIA 1<sup>st</sup> and 2<sup>nd</sup> Experts and Stakeholders' Workshop (Seville, 4-5 May 2012 and 6<sup>th</sup> September 2012) available on: <http://is.jrc.ec.europa.eu/pages/EAP/elclusion/MIREIA.html>.

<sup>41</sup> In the Annex – MIREIA eI2-IAF Toolkit the complete list of indicators associated to each typology of intervention is provided as part of the system of measurement indicators.

### 3.3. Focus on employability

As already mentioned above (see §1.2 and §3.2), it is relatively easy to associate outputs, and direct outcomes to specific interventions. It is much more difficult, however, to assess how each intervention contributes to achieving indirect outcomes and impacts.<sup>42</sup> A more practical approach can be used, even though it does not necessarily allow us to associate the cause and effect of interventions. This approach aggregates outputs and outcomes produced by all interventions carried out by an eInclusion intermediary. The aggregate effect of these interventions can be measured against the socio-economic indicators gathered. Thus, it is possible to estimate what impact could be related to the eInclusion intervention implemented by the intermediary.

The MIREIA eI2-IAF goes one step further by focusing on the specific impact of **employability**. Though the overall conceptual model underpinning the MIREIA eI2-IAF addresses the broad concept of eInclusion, and encompasses the multiple social and economic dimensions associated with the phenomenon, the specific focus on employability is further developed, see Figure 4. Indeed, the flexibility of the MIREIA eI2-IAF and the modular approach followed, allows for a possible extension of the model and its operational components to other dimensions of specific impact.

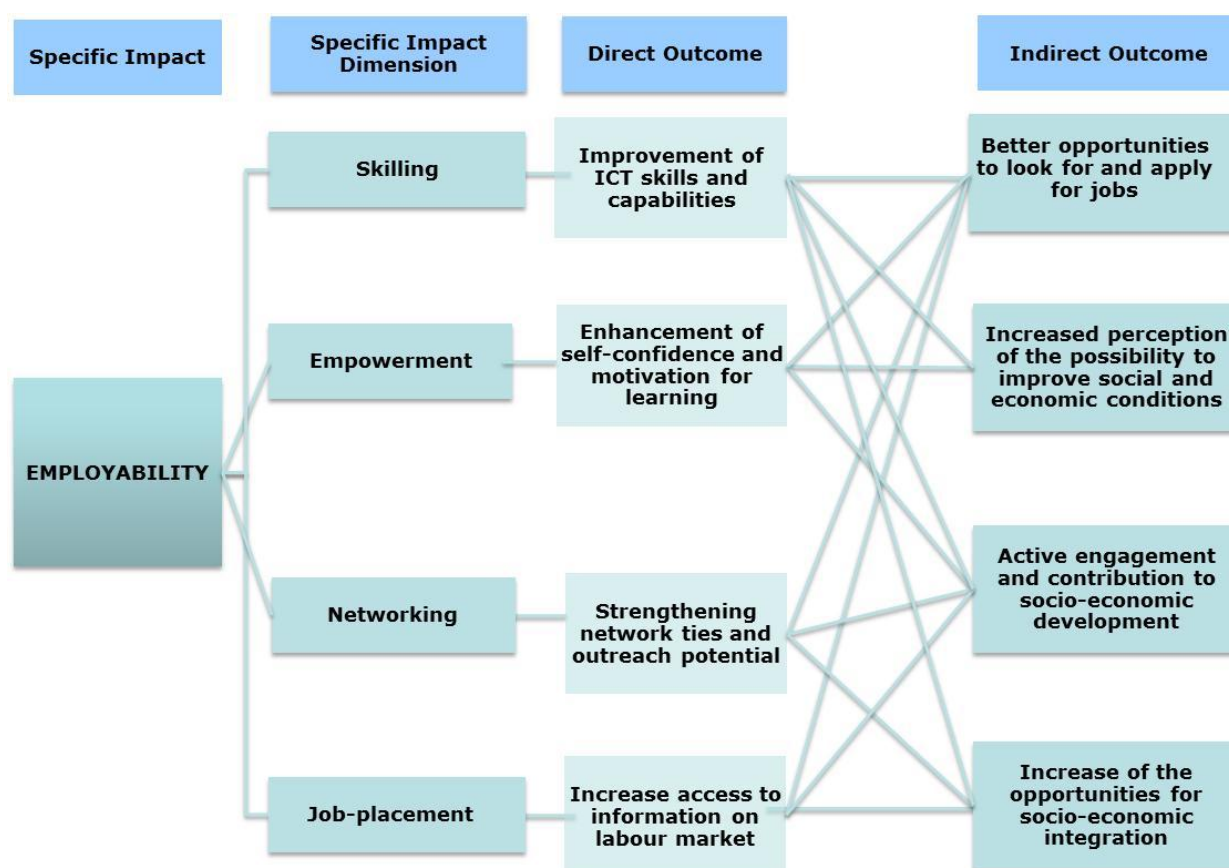


Figure 4 – The MIREIA eI2-IAF applied to employability

<sup>42</sup> As it has already been mentioned (see §1.2) and further discussed in details later (see Chapter 4 and 5), this causality link can instead be discerned through applying counterfactual impact evaluation to some interventions and, once the causality relationships are proven, it could be replicated to similar interventions. This is however a costly process which moreover requires expertise that is not always available to eInclusion intermediary organisations.



Consistent with the findings of the literature review carried out, the main dimensions of the impact of eInclusion intermediary interventions for employability, are not linearly related. Instead, **different interventions can generate various outcomes and contribute to achieving several impacts**.

Therefore, though a linear relation can be established between interventions and direct outcomes, all of these can generate, to different extents, indirect outcomes. For example, a linear relationship can be identified with regard to interventions addressing **Skilling** (improvement of ICT skills and capabilities); **Empowerment** (enhancement of confidence and motivation for learning); **Networking** (strengthening network ties and outreach potential – social capital bonding and bridging); **Job-placement capabilities** (facilitate the possibility for accessing information on labour market and entrepreneurial opportunities).

The indirect outcomes generated are, for example: better opportunities to look for and apply for jobs; increased perception of the possibility to improve (individual/group) social and economic conditions (social capital formation); increased opportunities for socio-economic integration and active participation in (local) economic development, thus contributing to employability and ultimately to enhancing socio-economic inclusion.

In this respect however, it must be underlined that for reasons of simplification and abstraction, reference is made to ‘interventions’ as the unit of analysis of the impact assessment framework. This concept however is not necessarily easy to define, especially at the level of eInclusion intermediaries. eInclusion programmes often incorporate a large number of initiatives and are not, nor should they be, limited to training courses. It is therefore difficult to establish what an eInclusion intervention actually is and, with regard to impact evaluation, how to design an adequate counterfactual impact evaluation.

For this reason, the conceptual model underlying the MIREIA eI2-IAF is further structured by practical tools that form altogether a comprehensive **operational framework**, as described in the following Chapter 4 and the Annex to this report that presents the MIREIA eI2-IAF Toolkit.



## 4. Operationalising MIREIA eI2-IAF

### 4.1. Overview

This chapter describes how the MIREIA eI2-IAF has been operationalised to support eInclusion intermediaries in assessing the specific impacts of their own interventions on **employability**, according to the overall conceptual model presented in Figure 3 (see §3.2).

The operational framework of the MIREIA eI2-IAF is composed of two main elements, as described in Figure 5. These components are complemented with a complete set of tools and practical guidelines on how eInclusion intermediaries can use the MIREIA eI2-IAF for self-evaluation of the impact of their interventions on employability. Details of the **MIREIA eI2-IAF Toolkit**, for reasons of readability have been included in the Annex to this report: The MIREIA eI2-IAF Toolkit.<sup>43 44</sup>

The main components of the operational framework are the following:

- **The Impact Measurement Tool**, comprised of the following sub-components:
  - **Context Analysis Checklist** helps eInclusion Intermediaries to better understand the context in which they are operating and to help them to define (*ex-ante*) *baselines*, *target groups characteristics and sizes* of the interventions to be implemented, and to update such information on a regular basis to support *in-itinere* and *ex-post* evaluations.
  - **System of measurement indicators** assists the intermediaries in monitoring and measuring their interventions (*in-itinere* and *ex-post*, but also in estimating *ex-ante* potential impacts) in relation to the resources allocated (inputs), the related services delivered to a target population (outputs), the direct and indirect outcomes generated and the estimated contribution to specific and global impacts.
  - **Evaluation criteria** help assess the outcomes and impacts generated by each intervention (i.e. micro level), and the aggregated specific impact of interventions carried out by an intermediary organisation (i.e. at meso level). They also help estimate the contribution of eInclusion intermediary interventions to achieving global impacts in their respective contexts (i.e. macro level) efficiently, effectively and sustainably.
- **Methodological guidelines for impact evaluation**, to provide intermediaries with a scientific approach, based on counterfactual techniques, for evaluating cause-effect relationships between their interventions and the impacts they have generated. Although based on a micro-level approach, these guidelines serve to justify intermediaries' and policy makers' strategic choices and the planning and evaluation (*ex-ante*; *in-itinere* and *ex-post*) of their interventions (i.e. at meso and macro level).

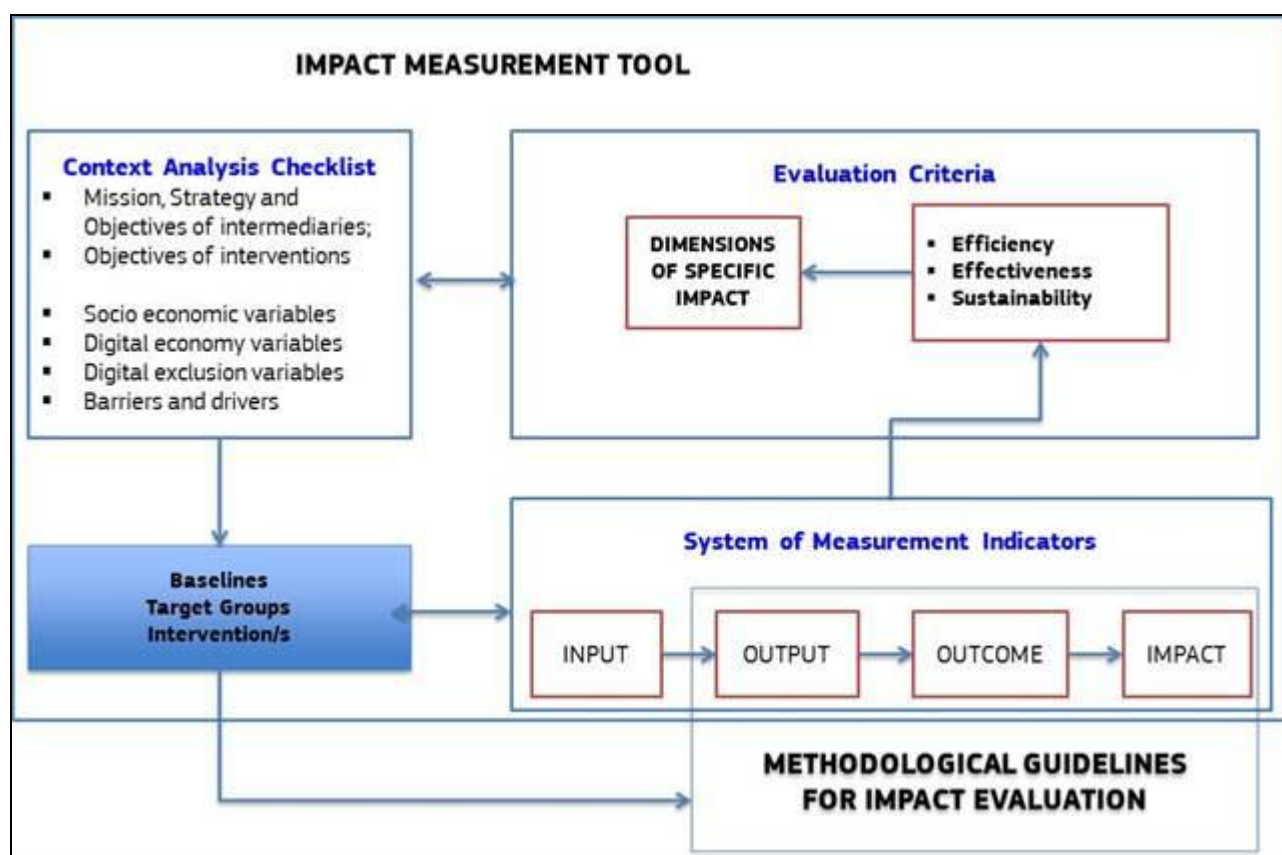
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<sup>43</sup> The **Annex – MIREIA eI2-IAF Toolkit** is complementary to this Final Report and thus, although both documents are intended to be self-standing, they should be read as a single report. In particular, the Annex, while recalling briefly the operational components of the MIREIA eI2-IAF, their purpose and how they are structured, presents in details the guidelines on how each operational tool can be implemented, and who should be involved in the process, presenting also examples that have been encountered during the testing of the MIREIA eI2-IAF in four case studies. In addition to that, and with specific regard to methodologies for conducting counterfactual impact evaluation, the Annex presents a description of the most common techniques, which have been applied in the case studies to test the MIREIA eI2-IAF and how to use of them. This includes a detailed description of the operationalisation of an experiment using a Randomised Controlled Trial approach in Italy, and a case of application of a quasi-experimental technique (i.e. Propensity Score matching), in Spain, as well as a simplified (non-counterfactual) approach for impact evaluation also used in the testing of the MIREIA eI2-IAF in the case studies in Ireland and Poland. The Annex concludes presenting the Question Bank extracted from the testing of the MIREIA eI2-IAF reporting all the questionnaires used for the surveys conducted on participants and beneficiaries of the interventions conducted by the case studies under investigation. They are an important resource that could be used as a reference for any intermediary for impact evaluation, although in most case the questionnaires would require an adaptation and contextualisation to the specific intervention under analysis. In addition to that, the Annex includes a full list of acronyms and a glossary of the technical terms that have been used in this Final Report and Annex.

<sup>44</sup> The MIREIA eI2-IAF Toolkit will be further developed into the **MIREIA eI2-IAF Handbook** which is under preparation to complement the **electronic version of the MIREIA eI2-IAF Toolkit** and that will be made available during the course of 2014.

It should be mentioned that the Impact Measurement Tool and the Methodological Guidelines for Impact Evaluation proposed are not alternatives, but can complement each other. In fact, the Impact Measurement Tool allows us to monitor and assess each intervention at the micro level and also its contribution to eInclusion intermediaries' strategic impacts (meso level) and related policy impacts (macro level). The methodological guidelines for impact evaluation, based on a counterfactual approach, give more scientific robustness to evaluation. They require, however, setting up experimental or quasi experimental conditions, which in turn require expertise and resources not usually present in an intermediary organisation.

In addition, it should be underlined that this complementary approach based on counterfactual methodologies does not need to be applied to all interventions. It could be applied only to a selection of them to assess their impact and thus produce evidence to demonstrate the importance of conducting these interventions. Carrying out the counterfactual exercise on one intervention would be sufficient to estimate impacts for similar interventions where the same conditions apply.



**Figure 5 – MIREIA eI2-IAF: Operational Framework**

As shown in Figure 5, the core part of the data sources for using the operational framework of the MIREIA eI2-IAF are the interventions conducted by eInclusion intermediaries. In a monitoring perspective, these eInclusion interventions can be linked to the resources (financial, human, material) used as inputs to generate a certain output (e.g. number of trained people that successfully completed a course). These, in a short to medium perspective should generate outcomes (e.g. skills improvement or new skills gained by participants in the training) and, in a medium to long-term perspective should produce better employability conditions for the beneficiaries of interventions. This may result in positive impact on their employment situation.

The figure suggests that the implementation of the interventions depends on a set of contextual conditions, and in particular on the following elements:

- The mission and strategic goals of the intermediary, together with the resources available shape the target population for which the intervention is designed. The latter is represented for instance by the various groups of people (e.g. young people with low ICT skills; older people who do not use Internet, migrants who do not have access to ICT, unemployed people looking for jobs, etc.) that are present in the intermediary's geographical area of influence.
- The baseline of the intermediary's intervention which represents the socio-economic conditions characterising the geographical area of influence of the intermediary before its intervention (e.g. % of people of working age without ICT skills out of the total population of working age).<sup>45</sup>

If the intermediaries' eInclusion interventions are well designed and in line with the policy objectives of the public administration or other organisation that provides the funds, they can produce positive effects in the short/mid-term (outcomes and specific impacts) on the target population (beneficiaries of the intermediaries' interventions). They can also contribute in the longer term to broader global impacts (e.g. increase of the employment rate in their context). In this respect, the intermediaries' interventions can contribute to overcoming challenges and satisfying needs identified by the policy strategy.

This is the scenario in which the MIREIA eI2-IAF operates, by helping on the one hand the intermediaries to design and deploy their eInclusion interventions more effectively, and, on the other hand, by helping public authorities and other funding bodies to better shape their eInclusion policies and programmes.

## 4.2. Impact measurement tool

The Impact Measurement Tool aims to provide a structured process for monitoring and supporting the assessment of the impacts produced by eInclusion intermediaries' interventions implemented according to given eInclusion policy objectives. As already mentioned (see §3.3) the development of the MIREIA eI2-IAF has focused on employability.

As mentioned above and described in Figure 5 the Impact Measurement Tool is composed of three intertwined elements: 1) the Context Analysis Checklist; 2) the System of measurement indicators; and 3) the Evaluation Criteria for assessing the outcomes and impacts of the interventions.

### 4.2.1. Context Analysis Checklist

The Context Analysis Checklist supports the definition of objectives at different levels: eInclusion policies (macro), a coherent set of interventions / programmes (meso) and single interventions (micro) carried out by eInclusion intermediaries. Essentially, the data gathered through the Context Analysis Checklist are instrumental to link more efficiently the needs and resources available in a specific context with programming decisions.

At the intermediary level, the Context Analysis Checklist aims to guide an eInclusion intermediary in collecting relevant qualitative and quantitative information on the geographical area of influence, including the needs of the target population and the factors affecting social inclusion/exclusion. This allows a better understanding of the context in which the target population is located so that interventions can be designed to address this population's needs.

Ongoing results of interventions should be then assessed periodically against the updated Context Analysis throughout the intervention.

The Context Analysis Checklist helps an intermediary to identify quantitative and qualitative data in order to define:

- the **baselines** of its eInclusion interventions;

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<sup>45</sup> In this respect, it should be distinguished between the baseline data that are collected to understand and analyse the socio-economic situation in which the intervention is placed, and the data needed for counterfactual evaluations which will be different in most cases. As we will see in §4.1.2 and in the Annex, in the Context Analysis Checklist of MIREIA however, the objective is to reconcile the information gathered systematically through the Impact Measurement Tool, and those that can be used to support counterfactual impact evaluations.

- the policy and socio-economic **trends** that could affect the outcomes generated by its interventions;
- the **barriers** and **drivers** hindering or enabling its eInclusion interventions.

To this end the checklist has been designed to collect qualitative and quantitative data related to four types of variables in the intermediary's geographical area:

- **policy context** at EU, national, regional and local level. Here the data collected should help us understand the prevailing policies, strategies, programmes and related funding. This is an important element of the context analysis as it can shape the intermediaries' interventions according to the real needs of the target groups.
- **socio-economic variables.** These characterise the territory in which the intermediary operates and the data collected should help us understand the main trends: e.g. population trends per sex, educational level, etc.; current unemployment rate and trend; current GDP and trend; current GDP per capita and trend. It should be underlined that qualitative information based on the feedback received from stakeholders and experts or interviews conducted with a sample of the population are combined with quantitative data to provide a more comprehensive picture of the intermediary's socio-economic context.
- **digital economy variables.** Here, qualitative and quantitative data will tell us how far the ICT infrastructures and the digital services available have developed in the geographical area in which the intermediary operates. They should also identify to what extent they have been adopted and are being used: e.g. degree of coverage of the ICT network infrastructure; degree of wireless coverage of urban areas; degree of access and usage of internet, diffusion and adoption of eGovernment services; degree of development of other eServices (e.g. eBanking; eCommerce, etc.) in a given territory; share of SMEs with broadband connection; share of employees in ICT sector and trends; nr of SMEs with demand for ICT skilled employees;
- **digital exclusion variables.** Here data is collected which quantifies and qualifies i) the target population in the area of reference that do not have access to and/or do not use ICTs, particularly the Internet, or ii) do not have the needed ICT skills: e.g. share of individuals who have never used a computer or who do not have Internet connection at home, by sex, age, nationality, employment status, educational level, income; or iii) the share of individuals who have digital literacy skills unemployed by sex, age, nationality, educational level;
- **barriers and drivers to the provisioning of eInclusion services.** Data collected on this variable will help us understand the factors influencing the delivery of an intervention by an intermediary in the area where it operates: e.g. number of intermediaries acting in the territory per size and typology, services provided; level of yearly funding available for eInclusion interventions in the territory provided by public and/or private organisations; legal constraints in providing eInclusion services.

A detailed list with examples of data sets to be collected for context analysis is included in the Annex as part of the MIREIA eI2-IAF Toolkit. The sources where the data can be obtained at the local level are also provided for each indicator.

The Context Analysis Checklist is a simple factsheet which combines qualitative and quantitative data in modules, according to the degree of effort needed for data gathering. This allows it to be adapted to the organisational capacity of any intermediary organisation.

As anticipated above, quantitative data for analysing the socio-economic context of reference and the main trends relevant for the interventions to be developed/monitored or evaluated, should be complemented by a qualitative situational analysis. Traditionally used in organisational and management studies, it is a systematic collection and analysis of past and present economic, political, social and technological data aimed at supporting 1) the identification of internal and external factors that may influence the

organisation's performance and choice of strategies; and (2) the assessment of the organisation's current and future strategic position, opportunities and challenges.<sup>46</sup>

To support this process of analysis, it is useful to develop a simple **Project Fiche**<sup>47</sup> which can be used by the representatives of an intermediary, at strategic and operational level, as a structured guide to check: *ex-ante*, what type of interventions should be designed to have a positive impact on the context of reference, based on the resources available and the socio-economic characteristics present in the area of intervention. It is also strictly linked to the system of measurement indicators (see §4.2.2) as it is useful to estimate indicators of output-outcome-impact related to the intervention. It also helps during the execution of interventions to gather all relevant information on the intervention/s to be monitored and evaluated. This includes structuring which data should be gathered for using the Impact Measurement Tool for *in-itinere* and *ex-post* impact assessment.

Moreover, the project fiche provides the intermediaries, external stakeholders and evaluators an overview of the context in which the intermediary operates and the interventions are undertaken. It enables a robust (i.e. consistent and comparable) insight to the particular characteristics of an intermediary and its goals, objectives and operations. It also enables those assisting with impact measurement of the intermediary's intervention/s to better understand the intermediary's internal strategic capacities, its objectives and the inclusion interventions it carries out. For this purpose, the Project Fiche should consider the local context by examining the local policy for intervention according to the indicators described above. It also helps to conduct an Analysis of the Strengths, Weaknesses, Opportunities and Threats - **SWOT Analysis**. This aims to better understand the current and prospective situation of the intermediary within the context of reference and how the planned/ongoing interventions are aligned with both the strategic/organisational and context/policy developments.

Both the definition of the Project Fiche and related SWOT Analysis should be conducted in consultation with relevant stakeholders. The typologies of **stakeholders to be involved** in this process need to be adapted to the specific purpose of the intervention and the local context. In general terms, however, the involvement of representatives of different actors within the context of reference of the intermediary organisation is recommended to ensure all perspectives are taken into appropriate consideration. This means that not only project managers and staff involved in the implementation of the interventions should be engaged, but also staff of other relevant departments of the intermediary (e.g. finance, planning, public relations and communications, IT, etc.). The participation of external people, including local policy makers, representatives from industry, academia and civil society, and particularly the direct and indirect beneficiaries of interventions is also important to gather external perspectives and better assess the needs and relevance of interventions with respect to the context of reference and needs of the target population.

A properly designed consultation process (for example through workshops and focus groups) is crucial for this to be successful. This provides an adequate structure through which different stakeholders can develop a shared understanding of the nature of the challenges and agree on how to address them.

#### 4.2.2. System of measurement indicators

The definition of objectives is normally made according to a hierarchical approach (e.g. global, specific, strategic, operational) which points to the need for a correspondingly hierarchical system of measurement indicators. This system of indicators serves as the basis for monitoring the progress of interventions and

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<sup>46</sup> A situational analysis can be conducted according to several methods including the 5Cs Analysis (Company, Competitors, Customers, Collaborators and Climate) or the Porter five forces analysis, which are generally used by business organisations to better understand the market environment and support strategic and marketing development. Other methods used are the PEST Analysis (Political, Economic, Social and Technological), which also evolved into the STEER analysis, which systematically considers Socio-cultural, Technological, Economic, Ecological, and Regulatory factors. Finally the SWOT Analysis identifies and assesses strengths, weaknesses, opportunities and threats of any organisation with respect to the internal and external environment in which it operates. The SWOT analysis is increasingly used not only in the business sector but also in the public and third sector for policy and strategic development. For this reason it has been suggested as the method to use in the MIREIA eI2-AF.

<sup>47</sup> A template of Project Fiche adapted to support the application of the MIREIA eI2-IAF, which includes basic indications for conducting a SWOT Analysis is described in the Annex – MIREIA eI2-IAF Toolkit.

assessing whether planned results have been achieved, in terms of outputs and direct/indirect outcomes generated and the contribution they make to achieving specific and global impacts.

More specifically, indicators are used as tools to assess how far the expected objectives have been achieved by single interventions or by an aggregated coherent set of interventions (i.e. programme). The assessment of impact, the extent to which an intervention or programme has achieved its strategic objectives, is built up from the outputs and outcomes of individual interventions.

As already mentioned in § 1.2, in general terms, indicators should be specific, measurable, attainable in a cost effective way, relevant for the programme, and traceable (SMART). This logic underpins the choice of indicators of the MIREIA eI2-IAF. Its main advantage is that it considers indicators that can be directly collected by the intermediaries in their usual practice, thus allowing intermediaries to use them as self-evaluation tools. In this respect, the system of measurement indicators developed for the operational framework of the MIREIA eI2-IAF, which focuses specifically on employability, contains a set of indicators that have been extracted from the review of literature and practice, and from the case studies in which the MIREIA eI2-IAF has been tested. This set of indicators could be further expanded and additional indicators, more specific and appropriate to different contexts, could be developed and used. They must of course be available, or the data for their construction must be easily derived from local statistics or management processes implemented by intermediaries.<sup>48</sup>

The current system of measurement indicators proposed also reflects the need to define **common indicators** that could be used for comparison of interventions in different contexts. It is structured according to the following elements:

- **Input indicators** (i.e. resources used by the interventions, e.g. financial, material and human resources). These indicators are normally available within intermediary organisations budget, programming, and financial/accounting documents. These documents reveal both resources allocated to or spent on each specific intervention and to the overall set of interventions focusing on eInclusion.
- **Output Indicators** (i.e. services and products produced by the interventions, e.g. training courses; awareness actions; placement activities). These indicators are normally easily defined and monitored as they represent the immediate result of interventions and data about their progress are reported in each intervention's monitoring documents. However, it is important that definitions of these indicators are agreed (already *ex-ante*) so that they reflect the unit of measurement during the course of the evaluation. In many cases, internal systems of output monitoring are also available for small and micro organisations working in the field of eInclusion.
- **Outcome Indicators**, the direct and indirect benefits that the groups targeted can gain from the intermediary's interventions (e.g. enhancement of skills in Internet job search – direct outcome; leading to better capabilities to search for a job – indirect outcome).
- **Specific Impact Indicators**, these are structured according to the dimensions of specific impacts relevant to employability (i.e. skilling; empowerment; networking; and job placement) (e.g. improvement of employability conditions due to the enhancement of Internet Job search skills and resulting in better capabilities to search for a job).
- **Global Impact Indicators**, which allow us to estimate the contribution that eInclusion interventions carried out by an intermediary are making to the employment situation in the context where the interventions have been implemented. The global impact indicators point to what is ultimately expected to be the intervention's benefit. This is based upon the hypothesis that there is

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<sup>48</sup> For this reason the selection of measurement indicators can vary according to the characteristics and the nature of each eInclusion intervention. This choice to not opt for a fixed set of predefined measurement indicators allows the Impact Measurement Tool to be more flexible and to be self-used by any typology of intermediary and any typology of eInclusion intervention related to employability. However the proposed set of measurement indicators offer a quite wide range of choice in measuring the impact of eInclusion interventions since they have been already used by the intermediaries that have been involved in the case studies and have provided positive feedback in relation to their relevance in their current practices.



a direct causal relationship between the interventions' outputs, the direct and indirect outcomes generated by a coherent set of interventions and the specific impacts in relation to the context of reference in which the intermediary operates.<sup>49</sup>

**The proposed system of measurement indicators for employability is presented in full in the Annex – MIREIA eI2-IAF Toolkit**, together with guidelines on how indicators can be collected. In the following §4.2.3 we discuss **how these indicators can be used** to measure efficiency, effectiveness and sustainability of intermediaries' interventions at different levels.

The logic for each intervention (i.e. objectives, activities and resources) and the corresponding indicators (outputs-outcome-impacts) should be presented in a structured manner in the Project Fiche (see §4.2.1) and updated regularly when any change in inputs/outputs occurs.

In fact, as a general principle, **input and output indicators** need to be measured before and after each intervention in order to estimate *ex-ante* the potential outputs-outcomes and impacts expected and to assess (in-itinere and ex-post) the differences between the planned activity and the actual achievements. **Outcome (direct and indirect) indicators** should be measured on a regular basis (e.g. every three or six months) as they provide evidence of the changes that the intervention has produced. This can be done through surveys involving all the beneficiaries. These can be conducted by the intermediaries e.g. through online questionnaires, e-mails, Computer Assisted Telephone Interviews (CATI), direct phone calls or paper if needed. **Specific impacts** can be measured by the intermediaries with *ad hoc* surveys that must be conducted not earlier than one year after the completion of the intervention. In this case, surveys can be done through online questionnaires, CATI or direct phone calls.

In addition, and as a support to planning, monitoring and evaluation of interventions it is generally recommended that the system of measurement indicators be linked to the data gathered through the context analysis. Thus, potential impacts that the eInclusion intermediary interventions could generate can be estimated taking into consideration the local context of reference (*ex-ante*). The actual effects produced by the interventions can also be measured against the socio-economic context in which the intermediary operates (*in-itinere* and *ex-post*).

**Global impact indicators** are also included in the system of measurement indicators in order to provide a clear understanding of the overall logic of the intermediaries' intervention. However, they cannot be used directly as indicators to measure the impacts achieved. As the fieldwork experiences and the literature suggest, these global impacts are in fact more difficult to measure since they require the use of complex measurement models (e.g. multiple-equilibrium models) that can measure the combined effects of a large numbers of socio-economic variables. Moreover, the validity of the results provided by such models is highly affected by the socio-economic stability of the reference context. **Therefore the Impact Measurement Tool has been designed to measure the specific impacts of intermediaries' interventions and how these are related to the required inputs, the outputs that are produced and the direct outcomes of the interventions themselves. How they are related to the contribution interventions make to global impacts requires additional instruments.**

Box 1 and 2 below provide examples of data gathering approaches from the case studies investigated during the testing of the MIREIA eI2-IAF. Whereas input and output indicators are collected by all the typologies of intermediaries, outcome and impact indicators are usually collected by medium to large intermediaries (see FIT case study) or structured networks of intermediaries (see Guadalinfo case study). This is mainly due to the cost and resources (human and organisational) needed for conducting surveys, which usually prevent small and micro intermediaries from also conducting these activities themselves. In these cases, stakeholders such as large foundations (see FSRI case study) or public authorities in charge of

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<sup>49</sup> As already mentioned in Chapter 3, this however does not allow discerning if there is a cause-effect link between the interventions and the changes in the socio-economic context. For this reason, complementary analysis should be conducted using (counterfactual) impact evaluation methodologies (see §4.3) that, instead, aims at evaluating the existence and the intensity of the cause-effect relationships between intermediaries' interventions and their expected impacts.

eInclusion policy implementation in a specific geographical area (see Emilia-Romagna case study) have the necessary capacity to collect this data.

To sum up, as described in §4.2.3, the Impact Measurement Tool allows us to aggregate outputs, outcomes and impact indicators logically (through a hierarchical recomposition). Thus it helps to assess progress made by single interventions and programmes/policies in achieving impacts.

In addition, when possible, these estimates should be cross-checked against the counterfactual situation and contextual trends in an intervention area, compared to evaluations carried out for similar interventions in similar contexts, if available. This will be discussed in §4.3 (Methodological Guidelines for Impact Evaluation).

#### **Box 1 – The cases of Emilia Romagna region, Italy and Guadalinfo, Andalusia, Spain**

The case studies conducted present an interesting set of different approaches to the development of impact indicators. In particular:

- The **Regione Emilia-Romagna** has several years of experience in developing and using impact measurement indicators. For example, in order to monitor the impact of “Pane&Internet” eInclusion programme, it has organised a well-structured monitoring system where:
  - The **input data** are available from the Region's budget department: i.e. the financial resources allocated to each intervention. The intermediaries provide the information related to the participants in the funded initiatives (e.g. name, email, phone number, previous skills, etc.);
  - The **output data** of the interventions are collected by the intermediaries in charge of the interventions and automatically introduced into the regional monitoring system;
  - The **outcome data** are systematically collected (every three months) by the regional unit in charge of the policy evaluation, through surveys of all the intervention participants completed by the intermediaries (surveys are conducted by email, CATI or direct phone calls);
  - The **impact data** are collected by periodic ad hoc surveys organised by the regional unit in charge of the policy evaluation and conducted by email, CATI or direct phone calls.
- **Consortium “Fernando de Los Rios”** is responsible for the **Guadalinfo network of Telecenters** operating in the Andalusia region. It also has a structured monitoring system which aims to provide evidence of the results achieved through the activities of the network to the regional government and other funding bodies. To this end, the Consortium collects the following data:
  - **The input and output data** are provided by each local Telecentre, member of the Guadalinfo network, according to the characteristics of the specific interventions carried out;
  - **Outcome data** are sometime collected ad hoc and usually following a specific request by the Regional government.
  - **No Impact data** are collected.

## Box 2 – The cases of FIT, Ireland and FSRI, Poland

The other two case studies used to test the MIREIA eI2-IAF provide interesting insights into how impact indicators are used by grassroots organisations which implement focused interventions in the field, for example:

- **FIT** is a medium to large organization with several offices in Ireland and Northern Ireland. It has consolidated experience in the development and use of impact indicators. Even though this information is mainly used only for **micro-analysis** based upon the specific inclusion interventions provided, its monitoring approach deserves to be analysed as an interesting example which could be applied to similar intermediary organizations. The FIT monitoring system allows the organization to collect the following data:
  - **Input data:** a) available from FIT's budget unit, concerning the financial resources allocated to each intervention, and b) from the operation units in charge of the interventions, concerning the participants (e.g. name, email, phone number, previous skills, etc.);
  - **Output data** are collected by the organisational units in charge of the interventions and automatically introduced into the monitoring system;
  - **Outcome data** are systematically collected (every six months) by the organisational units in charge of the monitoring activity through surveys on all the participants which completed FIT interventions. The surveys are conducted through email, CATI or direct phone calls;
  - **Impact data** are collected by ad hoc surveys, not conducted very often, by email, CATI or direct phone calls.
- **FSRI**, a not-for-profit organisation funded the Polish-American Freedom Foundation, has a very simple monitoring system mainly devoted to providing output data for the funded activity performed. This is complemented by analysis conducted by external evaluators to assess the satisfaction of beneficiaries and the overall quality of the interventions and the achievement of results.

### 4.2.3. Evaluation criteria

According to the general approach to impact measurement and evaluation discussed in §1.2, there are several **criteria for evaluating how far an intervention has achieved the results intended**. Among these criteria chosen as part of the Impact Measurement Tool are: efficiency, effectiveness and sustainability.<sup>50</sup> They allow the intermediaries and inclusion stakeholders to make an aggregate assessment of the measurement indicators discussed in §4.2.2. This provides them with an instrument to better understand how far their interventions can address the four specific dimensions of impact on employability discussed in Chapter 3 (i.e. Skilling, Empowerment, Networking and Job Placement). Within the context of the MIREIA eI2-IAF they are calculated as follows:

- **Efficiency** (OUTPUT/INPUT ratio in the system of measurement indicators), describes the extent to which time, effort or cost is used for the implementation of a given intervention. It is often used specifically to relay the capability of a particular application of effort to produce a concrete outcome effectively with minimum waste, expense, and unnecessary effort. The measurement of the efficiency of a given intervention can be produced immediately after its completion and as soon as output measures are made available.
- **Effectiveness** (OUTCOME /OUTPUT ratio in the system of measurement indicators), provides a measure of the outcomes produced by a given intervention in relation to the output generated by the intervention itself. Effectiveness can only be measured when outcomes are available. As discussed in the section on Measurement Indicators (see §4.2.2), the measurement of the outcome of a given intervention has to be conducted a certain time after the end of the intervention. In the case studies, measurement of the outcomes was done three to six months after the intervention

<sup>50</sup> The criteria selected are common criteria that are the most widely used in practice by inclusion intermediaries as confirmed also by the fieldwork experience in testing the MIREIA eI2-IAF to the case studies.

was finished with surveys involving a sample of beneficiaries who successfully completed the intervention.

- **Sustainability** (IMPACT/OUTPUT ratio in the system of measurement indicators), aims to define the capability of the intervention to produce structural changes in the beneficiaries' conditions. Again, measurement of an intervention's sustainability needs to be done after a certain time after the end of the intervention itself. The time lag between the intervention and the measurement of impact indicators needs to be longer than that of the measurement of outcome indicators. This is due to the fact that sustainability is evaluated according to impact indicators that provide evidence of structural changes (e.g. in the employment status of the beneficiaries of a specific intervention). For this reason, as already anticipated in §4.2.2, the measurement of the impact is usually done at least one year after the completion of a given intervention. However the decision on when to conduct impact measurement and assess the sustainability of the intervention can vary according to the nature of the intervention itself and the availability of resources to conduct the evaluation.

In Table 3, examples of how to use the indicators to measure efficiency, effectiveness and sustainability of interventions that aim to increase employability are presented. They are based on the sample of the indicators that are part of the system of measurement indicators presented in the: Annex – MIREIA eI2-IAF Toolkit. In the same Annex, a complete set of indicators for each evaluation criteria are provided, together with the operationalisation of the data collection and measurement process of the Impact Measurement Tool.

**Table 3 – Use of evaluation criteria to assess specific impact dimensions**

Specific dimension of impacts on Employability	Evaluation Criteria		
	EFFICIENCY (OUTPUT/INPUT)	EFFECTIVENESS (OUTCOME/OUTPUT)	SUSTAINABILITY (IMPACT/OUTPUT)
<b>Skilling</b>	Total number of participants that have improved their skills/resources allocated to the intervention	Changes on employability status of the participants/ total number of participants that have improved their skills	Change of the employment conditions of the empowered participants/ total number of participants that have improved their skills
<b>Empowerment</b>	Total number of empowered participants/resources allocated to the intervention	Changes on employability status of the participants/ total number of empowered participants	Change of the employment conditions of the empowered participants/total number of empowered participants
<b>Networking</b>	Total number of participants that have increased networking capability/resources allocated to the intervention	Changes on employability status of the participants/ Total number of participants that have increased networking capability	Change of the employment conditions of the empowered participants/ Total number of participants that have increased networking capability
<b>Job-placement</b>	Total number of participants that have increased job-placement capability/resources allocated to the intervention	Changes on employability status of the participants/ Total number of participants that have increased job-placement capability	Change of the employment conditions of the empowered participants/ Total number of participants that have increased job-placement capability

In Table 4 we describe the possible uses of the Impact Measurement Tool at different levels of analysis (micro-meso-macro), according to the typology of intermediaries involved in the impact measurement, based on the experience of the case studies.

The **micro level** of analysis focuses on a single intervention, and can be monitored by any intermediary in charge of an intervention. The measurement of **meso level** impacts is possible and more important for networks of intermediaries and stakeholders (e.g. donors or foundations) that are responsible for sets of interventions. They usually also have enough resources to conduct the systematic collection of outcome indicators and *ad hoc* surveys of impacts, in order to measure effectiveness and sustainability. Moreover, according to the experience derived from the case studies, medium-large intermediaries can also conduct analysis at the meso level (e.g. the FIT case study).

Finally **macro level** analysis, related to the measurement of the impact of the whole set of interventions supporting a specific policy objective are usually conducted by local/regional/national governments in charge of elnclusion policy implementation.

**Table 4 – Possible use of the Impact Measurement Tool**

Typology of user	Level of Analysis		
	Micro level (impact measurement of a single intervention)	Meso level (impact measurement of an aggregate set of interventions)	Macro level (impact measurement of a whole set of interventions related to a specific policy objective)
<b>Public authority in charge of an elnclusion Policy Intervention</b> (e.g. Emilia Romagna region in Italy)			<b>Local, Regional, National public administrations</b> having in place a monitoring process for the measurement of OUTPUT-OUTCOME - IMPACT of elnclusion interventions funded under specific policy objectives
<b>Structured network of intermediaries</b> (e.g. Guadalinfo network of Telecenters in Spain)		<b>Network of Intermediary, Private donors or Foundations</b> having in place a monitoring process for the measurement of OUTPUT-OUTCOME-IMPACT of elnclusion interventions funded during a given period of time	
<b>Single Intermediary</b> (e.g. FIT in Ireland and FSRI in Poland)	<b>All kind of intermediaries</b> can use the Tool to produce EFFICIENCY measures of their interventions;  <b>Medium-large size Intermediaries</b> with enough resources to conduct surveys on OUTCOME indicators and produce EFFECTIVENESS measures of their interventions	<b>Medium-large size Intermediaries</b> with enough resources to conduct surveys on IMPACT indicators and produce SUSTAINABILITY measures of their interventions	

### 4.3. Methodological guidelines for impact evaluation

The aim and importance of impact evaluation was discussed in §1.2. We highlighted the fact that its goal is to support intermediaries in evaluating causality relationships between their interventions and related outcomes, in order to demonstrate impacts of these interventions.

Testing the MIREIA eI2-IAF on the case studies showed that impact evaluation is an important component of the Impact Assessment Framework. Evidence that interventions have concrete and stable effects on the employability conditions of targeted groups allows intermediaries to better design future interventions. However, impact evaluation is quite complex to carry out and it usually requires the support of expert evaluators.

As anticipated in §1.2, a variety of methodologies for impact evaluation exist. They can be distinguished in methods based on **experimental design with randomisation (Randomised Controlled Trials - RCT)** or, as alternatives to randomisation, **quasi-experimental** (also known as observational) methods.

What is common to these 'alternative' approaches of counterfactual impact evaluation is that they attempt to identify or create the most appropriate **control group** in order to overcome the two main obstacles in the estimation of the counterfactual, which are:

- The '**selection bias**': i.e. the target population differs from the control population due to pre-intervention features. A way of overcoming this bias is to introduce an identification hypothesis stating that pre-intervention variables are sufficient to 'reconstruct' the control group of non-beneficiaries (counterfactual).
- The presence of **spontaneous dynamics**, due to the fact that the target population differs from the control population for the result variable trend. This can be overcome by introducing an identification hypothesis that takes into consideration the spontaneous dynamics of the result variable trend.

The application of different methods depends on certain conditions. In testing the MIREIA eI2-IAF, different approaches have been applied, as described in Table 5.

**Table 5 – Impact Evaluation Methodologies tested in the Case Studies**

Impact Evaluation Methodology		Case Study of application
Counterfactual	Experimental (i.e. Randomised Controlled Trial - RCT)	Pane & Internet – Lavoro, Emilia Romagna Region, Italy
	Observational / quasi-experimental (i.e. Propensity Score Matching)	INN&CIA, Guadalinfo, Andalusia, Spain
Non-counterfactual	Simplified method of impact evaluation	ICT Skills for employment development programme FIT-Fast Track to IT, Ireland
	Simplified method of impact evaluation	Link to the future: Youth, Internet, Career, FRSI, Poland

A case study (Italy) adopted a counterfactual approach using an experimental design (i.e. mirroring a RCT) and another case (Spain) applied a quasi-experimental design (i.e. Propensity Score Matching).<sup>51</sup> A third, more pragmatic, approach has been applied to the other case studies. In brief, it consists of a simplified method of impact evaluation that can be used when there is explicit evidence of cause-effect relationships between intermediary interventions and their effects (e.g. an explicit request for training services from an industry which is looking for skilled people to employ). In these cases, it is possible to overcome the cost and complexity of a rigorous impact evaluation methodology (i.e. counterfactual) and to opt for a simpler approach which compares the impacts (e.g. employment status) on a group of beneficiaries of a given intervention with the impacts on a control group with similar characteristics. Here, there is no need to apply

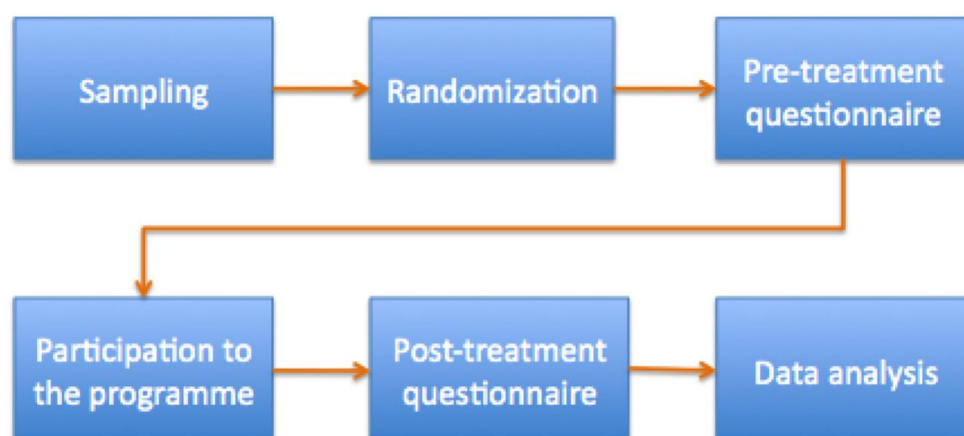
<sup>51</sup> Other common quasi experimental design methods that use different identification strategies to recover the counterfactuals and to control for the selection bias are: Matching, Difference-in-Difference or Double Difference, Regression Discontinuity Design, and Natural Experiments. They are described in more details in the Annex – MIREIA eI2-IAF Toolkit.

any randomisation or matching procedure amongst the two groups. This approach has been adopted in the Irish case and, to a certain extent, the Polish case. However, this latter case did not compare the employment conditions of two groups, but instead analysed the differences of behaviour between two groups of students towards the choice of their University degrees. The aim of this analysis was to see whether the group of students that had been involved in an awareness raising intervention that promoted ICT learning more compliant with the job market trends in Poland was encouraged to choose ICT-oriented University careers, in comparison to a similar group of students that had not been exposed to the intervention.

The methodologies applied in the case studies are described in the following paragraphs. The results from the application of these methodologies to the case studies are provided in Chapter 5.

#### 4.3.1. Randomised controlled trials

**Randomised experiments deliver a measure of the true impact of the intermediary's intervention and guarantee 'internal validity'.** The difference in mean outcome between the treated group (TG) and the non-treated group (nTG) (i.e. comparison or control group) is a consistent estimator of the causal effect. Randomised experiments are experiments with social policies in which assignment to 'treatments' is based on the results of a random assignment, or lottery. The steps for the implementation of the procedure are presented in Figure 5.



**Figure 5 – Main steps of the Randomised Controlled Trials approach**

First the individuals are sampled from a given population. They are then randomly assigned either to the group which receives the treatment (e.g. the training courses) or to the group which remains untreated. Random assignment refers to the use of chance procedures to ensure that each participant has the same opportunity to be assigned to any given group. The simplest form of random assignment consists of flipping a coin, drawing names out of a hat, or assigning random numbers to participants. Once the **impact variables** (e.g. employment status, working conditions, etc.) have been defined, a pre-treatment questionnaire assesses the situation of the two groups before the treatment as regards the impact variables under consideration. After participating in the intervention (i.e. treatment), the treated individuals are administered another post-treatment questionnaire, which assesses any variation in the impact variables considered, followed by the data analysis. The data analysis consists merely of computing the difference in the impact variables (e.g. employment status, working conditions, etc.) between the treated and the non-treated individuals after a certain period of time (several months or one year or more) after the conclusion of the intervention.



Randomisation ensures that the treatment group and the comparison group are comparable in every respect (e.g. age, proportion of men/women, qualifications, motivation, experience, cognitive abilities, etc.). Indeed, when a population is randomly allocated into two groups, the two groups have extremely similar characteristics, provided the population is sufficiently large. The only difference between those two groups is that one takes part in the intervention and the other does not. Consequently, if the variable under consideration is for example the placement rate after a training programme, and in the case that this rate is higher in the treated group than in the control/non-treated group after a certain lapse of time (e.g. 6 months), the intervention would seem to have been effective, thus having a positive impact. Because randomisation ensures that the two groups are comparable in every respect, the placement rate in the comparison group is representative of the placement rate that we would have observed in the treatment group if it had remained untreated.

Therefore randomised controlled trials are considered as the **gold standard of counterfactual impact evaluation**. The method eliminates the biases given by selection and spontaneous dynamics mentioned earlier. However they are not frequently put into practice because they are expensive and require close monitoring. Moreover they involve important ethical considerations, as some individuals are denied a potentially beneficial treatment based on a sort of lottery. Furthermore, this kind of analysis requires careful planning and considerable skill and resources. Inclusion intermediaries are therefore seldom capable of conduct it on their own. Finally the procedure is best carried out in a fairly simple intervention. Many policies are traditionally complex, however, as they operate on multifaceted/multilevel problems.

In the following box, we briefly describe an experience with the Randomised Controlled Trial methodology in the case study in Italy during the testing of the MIREIA eI2-IAF.

### **Box 3 – Example of application of the Randomised Controlled Trials Methodology**

The intervention '**Pane & Internet - Lavoro**' (more details are available in Chapter 5) was selected as a suitable candidate for trying out an approach mirroring a RCT as part of the testing activities of the MIREIA eI2-IAF. The pool of individuals eligible for the treatment (i.e. training course on Internet Job search) were unemployed people between 35 and 65 years living in the Emilia Romagna region (Italy) and registered in the local employment centres. The enrolment procedure consisted of an open call for applications on a first come first served basis. The control group was composed of the applicants to the courses who were not selected (about 60 individuals), and by unemployed people of the same age as the participants in the training courses, who were on the unemployment list of the employment centres of the province of Bologna, Parma and Rimini.

In total 360 people were pre-selected for the control group and about 150 for the training courses. Of the 150 participants, 104 responses to the pre and post treatment questionnaires were gathered and 53 valid responses for the questionnaire administered three weeks after the training course ended. 99 subjects of the control group were interviewed over the phone. In the case of '**Pane & Internet - Lavoro**' this number of valid interviews represented a balance to reduce the cost of the survey and maintain the statistical significance of the evaluation. Finally the data were made available, having ensured that identification of individuals was not possible, in order to guarantee data protection and privacy.

The existence of cause-effect relationships between the training activities and the employability of the trainees was then assessed. The impact variables assessed included some relevant indicators for employability such as: average number of job contacts from social networks (in the last month); average number of social networks used for job searching (in the last month); average number of on-line vacancies applied to (in the last month); average number of job searching portals consulted (in the last month) and average number of job offers received (in the last month). However, due to the short time span of the experiment it was not possible to evaluate the mid- to long-term impacts of the treatment, which can take up to at least one year after the intervention to manifest themselves. Among the challenges encountered in implementing the RCT methodology, it should be mentioned that the acquisition of the list of individuals to form the control group was difficult. This was mainly due to privacy issues that were, however, solved through an agreement (that had not been available before) between the employment centres that provided the list of unemployed individuals and the Region that had to undertake the phone interviews.



### 4.3.2. Propensity score matching

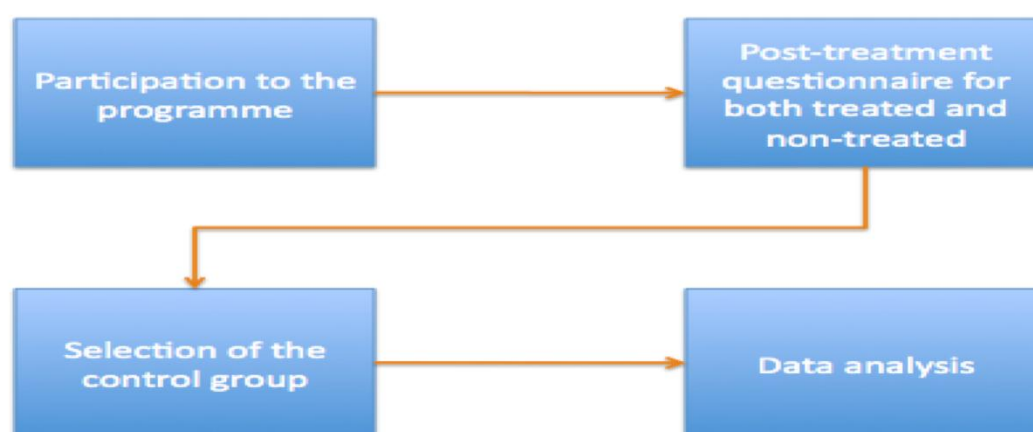
Another counterfactual impact evaluation methodology that can be used for assessing the impact of an intervention is propensity score matching. Let us suppose that a group of individuals applies for an intervention. Some of them will receive it, while others will not, depending on a given set of characteristics.

In order to assess the impact of the intervention, it would not be correct to compare the treated and the non-treated individuals for reasons of bias explained earlier (see introduction to §4.3). We can however use propensity score matching to construct a statistical comparison group (i.e. control group) on the basis of the probability of participating in the treatment, using observed characteristics. Participants are then matched on the basis of this probability, or propensity score, to non-participants. This allows us to reconstruct two groups of similar individuals, each pair being made up of one participant and one non-participant, both with analogous characteristics. The matching characteristics should be easy to observe and important determinants of the chances to be subject to the treatment. In this respect, a series of personal and contextual data, such as age, gender, previous work experience and qualifications, and a series of indicators describing the economic context in which the two individuals operate should be collected.

More specifically, there are two sets of variables to be collected:

- **Matching variables**, which are related to invariant (with respect to the treatment) characteristics of the individuals, such as: age, level of education, gender, former involvement in similar interventions, work experience, previous employment sector, etc. which are used to construct an appropriate control group.
- **Impact variables used in assessing the effects of the treatment**. Examples include: employment status, personal income, ICT knowledge, entrepreneurial knowledge, etc.

These data can be collected by online questionnaires administered to the individuals belonging to the control group and to the treated group. Once the intervention is concluded, the data belonging to the treated and the non-treated individuals are collected.<sup>52</sup> The control group is then defined through a matching methodology. Finally, data analysis is carried out by computing the difference between the average evolution or changes in the impact variables before and after the treatment for the treated and the non-treated groups. The steps in implementing the approach are presented in Figure 6.



**Figure 6 – Main steps in the propensity score matching approach**

Like the Randomised Controlled Trials, the propensity score matching approach also requires that non-treated individuals fill in a questionnaire. However, the process is less expensive than RCT and it avoids the

<sup>52</sup> Compared to the RCT, in this case no pre-treatment questionnaire is provided because the evaluation is carried out once the treatment is finalised while the RCT is planned before the treatment and the TG and nTG are selected at the same time before the treatment from the same sample of the target group.

ethical problems that could arise when an individual is denied a potentially beneficial treatment on the basis of a random draw.

In Box 4, a brief description of the experience of applying the Propensity score matching methodology during the testing of the MIREIA eI2-IAF in the case study in Spain is presented.

#### **Box 4 – Example of application of the Propensity Score Matching Methodology**

The Counterfactual Impact Evaluation using the Propensity Score Matching methodology was applied to the **INN&CIA** intervention. This was selected as a case study for testing the MIREIA eI2-IAF and conducted by the Guadalinfo consortium in the Andalusia region of Spain.

The characteristics of the 1,300 eInclusion interventions in the database of projects conducted by Guadalinfo over the last 5 years were analysed.

All the eInclusion projects analysed aimed to help individuals to increase their social inclusion through enhancing access to or use of ICTs. Of these, a specific subset of 300 projects supporting social entrepreneurship and social innovation through ICTs, was focused on. This subset benefited from a specific intervention programme called INN&CIA (more details are available in Chapter 5).

It was chosen to evaluate these interventions due to the availability of data for conducting the evaluation. In addition, the Guadalinfo management team was clearly interested in understanding to what extent INN&CIA interventions produced an impact on employment and on the competitiveness of the SMEs operating in Andalusia, and comparing them to the other interventions conducted by Guadalinfo.

The Guadalinfo team divided the 1300 projects between 300 which were treated with INN&CIA and about 1,000 which were not. Email addresses of all the project participants were identified and collected in a common repository for managing an online mailing list with the evaluation questionnaires.

The evaluation experts and members of the Guadalinfo operational team prepared the questionnaires for the online survey.

Guadalinfo team then emailed both the treated and the non-treated individuals for about 3 weeks during February 2013, collecting 59 valid responses from the treated group and 280 valid responses from the non-treated group. The collected data were organized in an excel file by the evaluation expert for statistical elaboration. This included a matching activity using the econometric software STATA to analyse the counterfactual impact of the INN&CIA intervention.

The matching variables that were used for determining the control group were: age, level of education, gender, former involvement in social innovation activities of the project promoter, support from other interventions, professional experience of the project promoter, previous employment sector of the project promoter, type of product or service.

The analysis showed a cause-effect relationship between the interventions analysed and the impact variables (as discussed further in Chapter 5).

This experiment faced some challenges during the application of the methodology. These were mainly related to the limited response rate to the questionnaire emailed to the treated group and the control group. This was due firstly to the fact that the questionnaire used to test the Impact evaluation component was quite long. This caused some respondents to answer incoherently. Secondly, respondents had privacy concerns about the final use of the requested information.

#### **4.3.3. Other non-counterfactual methods of impact evaluation tested as part of the MIREIA eI2-IAF**

Simplified methods of impact evaluation can be adopted in interventions where there is clear evidence of a cause-effect relationship, for instance because the intervention is directly linked to a job opportunity. In some cases, training activities and related awareness actions are prompted by the industry, which will then probably employ those trained.

In such cases, it may not be necessary to apply rigorous counterfactual approaches to evaluating the impacts of the intermediaries' interventions. A less rigorous evaluation approach can be used, based on data gathered from evaluations carried out by the intermediaries responsible for the intervention. The

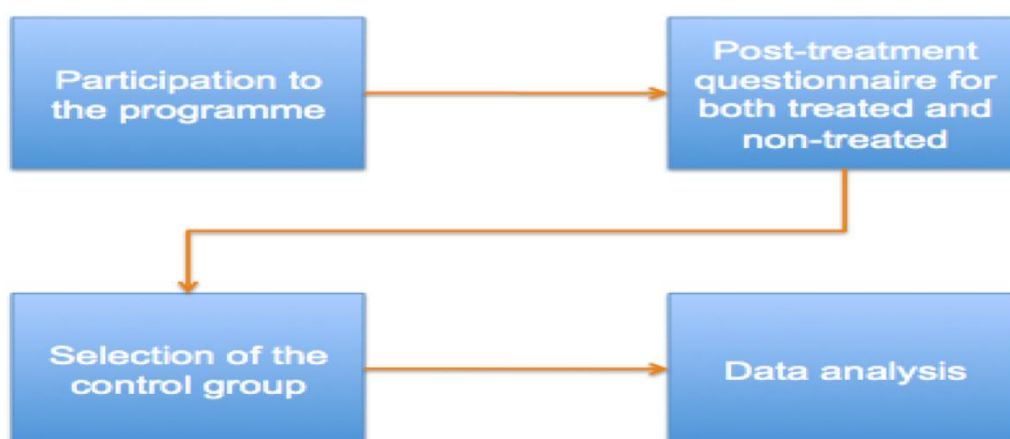
difference in the mean variation in the impact variables between the treated and the non-treated individuals can then be computed.

This approach differs from the counterfactual approach mostly in the definition of the control group which is selected in a less rigorous and systematic way by the intermediary responsible for the intervention. It may cause some bias in the comparison of the treated and non-treated group. However, this approach, even though it is not as rigorous as the methodologies described in the previous paragraphs (i.e. randomised controlled trial and propensity score matching) can provide a fairly reliable assessment of impact. Moreover, it is much less expensive and requires fewer skills than the more rigorous counterfactual methodologies presented above. It can, therefore, be easily carried out by almost any intermediary organisation.

When testing the MIREIA eI2-IAF in the Irish case (FIT), it was useful to define two classes of treated individuals:

- **A cohort of individuals treated in the past** - say a year ago, and who therefore display the effects of the treatment;
- **A control cohort** made up of past applicants who were not selected for the treatment.

The impact of the intervention can be evaluated by comparing the past cohort, one year after the completion of the intervention, and the control group, who did not take part in the intervention. Figure 7 shows the main steps of this simplified method of impact evaluation. There is no matching process (in the strict sense of propensity score matching) and therefore the statistical validity of the results is lower. This approach, however, is easier and less costly than applying propensity score matching.



**Figure 7 – Main steps in the simplified method of impact evaluation**

More details on how this method, which was implemented in the case studies in Ireland and to a certain extent also in Poland, are reported in Chapter 5.

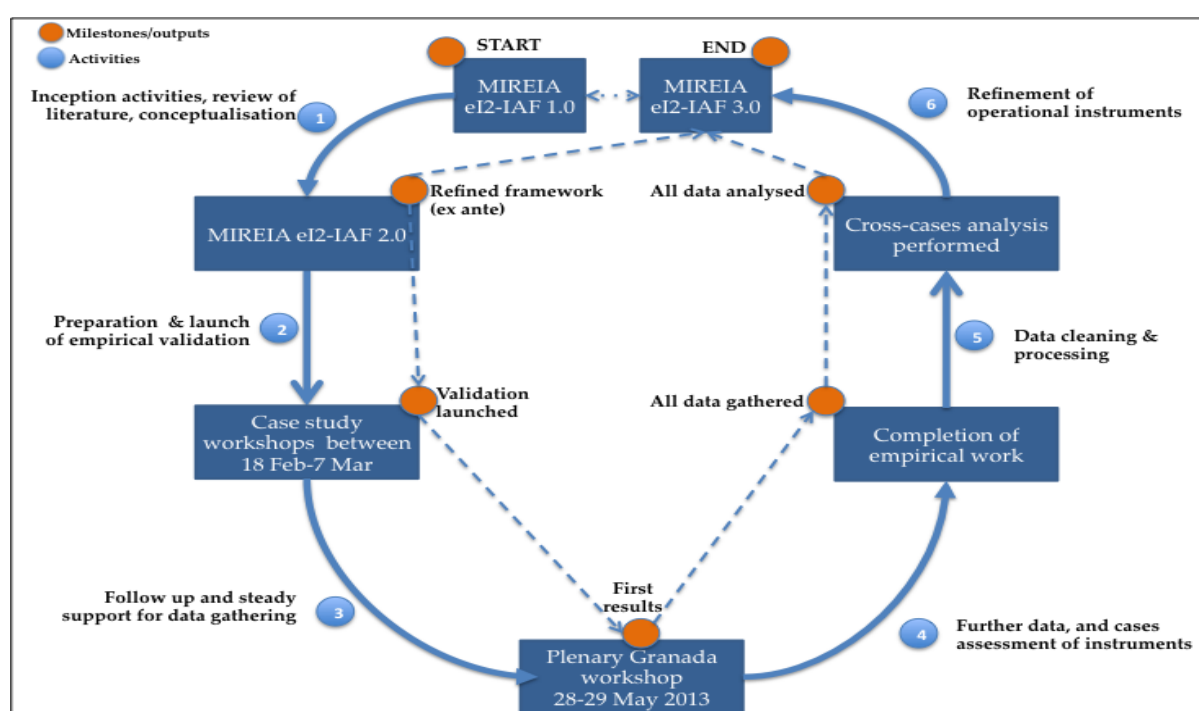


## 5. Test and validation of the MIREIA eI2-IAF

### 5.1. Methodological approach

The methodology adopted for the empirical test and validation of the MIREIA eI2-IAF has benefited from close collaboration with the eInclusion intermediaries working in the four selected cases. In very simple terms, a local researcher for each of the cases was chosen in order to gather data and support the application of the methodological approach for testing and validating the MIREIA eI2-IAF at local level. They liaised with the local institution in charge of the interventions, in strict collaboration with the staff of the intermediary organisations, the external experts in impact evaluation and JRC-IPTS to provide methodological support to the process.

The principles of Action Research were followed (see §1.1) and local stakeholders, practitioners and researchers were involved, acting as co-producers of knowledge to contribute to testing and validating the MIREIA eI2-IAF. Figure 8 describes the methodological approach adopted:



**Figure 8 – Design of the activities of testing and validation of the MIREIA eI2-IAF**

A key pillar in the approach was the communication and collaboration with the practitioners working in the selected case studies. This was ensured through continuous contact with intermediary representatives. Also, preparing methodological background material in the language of each case study for the methodological workshops (step 2 in the figure), conducted at an early stage of the research activity, was key to engaging the stakeholders' commitment. The workshops were attended by a variety of participants, representative of different stakeholders.<sup>53</sup> Moreover, the workshops also aimed to build capacity and gather the views, needs, and appraisal of the participants. They were the occasion for planning the data collection needed for testing the MIREIA eI2-IAF in real-life contexts.

<sup>53</sup> It included staff members of the intermediaries at policy, strategic and operational level, representatives of funding organisations, participants in interventions, representatives of local businesses and civil society organisations, as well as local researchers and local policymakers. JRC-IPTS researchers also participated in each workshop so to ensure the activities were aligned with the overall objective of this research.

Following the analysis of data gathered (step 3), a plenary workshop attended by all case study representatives and other experts was organised near the end of the testing phase of the project to discuss the preliminary results of the activities of testing and validation of the MIREIA eI2-IAF.

Once the empirical work was completed and the data gathered cleaned and analysed (step 4), a cross-case analysis was performed (step 5), in order to learn from insights of the application of the MIREIA eI2-IAF to real cases. The socio-economic and policy context of each intervention was also analysed.

On the basis of the lessons learned and the feedback gathered from participants and experts, the operational elements of the MIREIA eI2-IAF were refined and the validated version (V3.0 in the figure) was finalised (step 6).

Finally, from a methodological perspective, it should be underlined that one of the most challenging testing activities was getting the practitioners to use a very formalised and quantitative method such as counterfactual impact evaluation. As was anticipated in Chapter 2, only a few eInclusion studies have been based on counterfactual evaluation. Thus, testing the MIREIA eI2-IAF has been used to see whether eInclusion intermediaries would be interested and capable of carrying out this form of evaluation, gathering at the same time some interesting results.

In the following paragraph, we present an overview of the case studies with a particular focus on the results of the application of the Impact Evaluation Methodologies (see §4.3).

## 5.2. Case studies: testing the MIREIA eI2-IAF<sup>54 55</sup>

### 5.2.1. 'Pane & Internet-Lavoro' / (Bread & Internet-Jobs), Emilia-Romagna Region, Italy Background and context

Since 2002, the Emilia-Romagna Region has promoted the development of an inclusive Information Society. It was only at the beginning of 2009, however, that the regional government launched a formalised strategy for eInclusion, known as '**Pane & Internet**' (P&I) / '**Bread & Internet**'. Its overall goal is to reduce the knowledge divide between Internet users and non-users and to reduce digital exclusion among its population.<sup>56</sup>

After the pilot phase conducted during 2009-2010 in which about 3,000 people were trained, '**Pane & Internet**' became a key part of the 'Piano Telematico dell'Emilia-Romagna – PITER' (Regional Telematics Plan). In the following 3 years, it provided over 500 ICT training courses with more than 8,000 participants and 200 eInclusion facilitators trained. The overall intervention, which is still operational, aims to train over 10,000 people through 630, twenty hour long, free 'digital literacy' courses.

With regard to the **management of the intervention**, 'Pane & Internet' is coordinated and funded entirely by the Emilia-Romagna regional government with about a total 1.6 million Euros for running the programme for three years up until mid-2014.

In terms of **monitoring and evaluation**, all training courses are accompanied by tutors who ensure a structured monitoring of activities and reporting to the regional government. The monitoring system allows the regional government to:

- Gather socio-demographic information about participants, in order to compare the resulting profiles of participants with the socio-economic trends of the region;

<sup>54</sup> This section which presents the results of the testing of the MIREIA eI2-IAF in the case studies is based on analysis provided by the local researchers and the organisation which provided methodological support to JRC-IPTS. The text has also been validated by the case owners. JRC-IPTS does not guarantee the accuracy of the data. Moreover, it should be recalled that the activities conducted were instrumental in testing the feasibility of the methodological approach, rather than aiming at having a full application of the methodologies for counterfactual impact evaluation. This in fact would have not been possible within the limited context of the research.

<sup>55</sup> Final case study reports prepared by the local researchers contracted by JRC-IPTS to support the testing of the MIREIA eI2-IAF are available on the MIREIA project's website at: <http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/MIREIA.html>

<sup>56</sup> At the end of 2008 the citizens at risk of digital exclusion in Emilia Romagna were estimated to be over 1 million, out of a regional population of about 4.5 millions.

- Measure the degree of satisfaction resulting from course participation in order to adapt specific aspects of the courses with respect to participants' needs;
- Assess improvements in the skills of participants trained;
- Collect useful suggestions to improve the courses' content and delivery.

In general terms, due to the characteristics of the training courses developed under '*Pane & Internet*' up until 2012, the **beneficiaries of the intervention** were mainly retired people (about 57%) and housewives (14%). These participants wanted to start using PCs and Internet for e-Commerce purposes and to save money by using ICT facilities such as Skype, e-mails or social-networks to communicate with parents and friends. The rest of the participants were mainly employed people (17% of the total) with an interest in increasing their ICT skills to maintain and/or improve their job positions. At that time, only a 12% of the beneficiaries of the training courses were unemployed, and the training interventions addressed mainly basic ICT skills.

### Case study description

Between 2011 and 2012, as the economic crisis deepened, GDP in the Emilia-Romagna Region dropped by 2.6% and the unemployment rate rose by 2.1%. As a result, the '*Pane & Internet*' goal shifted to counteracting the growing unemployment in the region. A series of training interventions were planned to target unemployed people and improve their ability to use the Internet for job searching.

A specific intervention, named '***Pane & Internet – Lavoro (P&I-L)***' / '***Bread & Internet – Jobs***', was launched at the beginning of 2013 and was organised so to take place at the same time as the MIREIA eI2-IAF testing activity. It was chosen by the Region in agreement with JRC-IPTS as a case study to test the MIREIA eI2-IAF. The intervention was evaluated between March and June 2013.

The **specific objective** of the intervention was to promote the use of ICT and enhance the capacities of unemployed people to search for jobs on the Internet. The **target group** consisted of unemployed people aged between 35-65 and registered to the Centri per l'Impiego / Sportelli per il Lavoro (Employment Centres).

The intervention aimed to increase the capability of the beneficiaries to search and apply for jobs using the Internet. The training courses focused on the following skills:

- Understanding and using the basic functions of the PC;
- Navigating on the web and using the services available online to meet personal needs;
- Using the Internet safely with adequate protection;
- Using the online services offered by local government.

In terms of **inputs**, a specific budget of 40,000 Euros was dedicated to this experimental series of training courses. In terms of human resources, the experiment involved a team of 1 full time employee and 10 part time employees to support the various activities involved.

The intervention took place in the sub-regional areas (Provinces) of Parma, Bologna and Rimini, which have different socio-economic characteristics. As main **outputs**, 13 '*Pane & Internet – Lavoro*' courses were organised (9 in the province of Parma, 2 in the Bologna Municipality and 2 in the Province of Rimini). They took place in a Computer Lab with one PC per course participant. Each course was devoted to a limited number of participants (an average of 15 participants was considered the optimum course size).

Moreover, to complement the activities of monitoring and evaluation already carried out as part of the '*Pane & Internet*' programme, a specific experimental **impact evaluation was planned and carried out with the following objectives**:

- Assessment of the feasibility of integrating the content of the '*Pane & Internet – Lavoro*' intervention into the standard services of the local Employment services;
- Assessment of the change in the job searching capabilities of the participants in the courses.

In addition to reviewing the relevance and adaptability of the overall MIREIA eI2-IAF in comparison with the existing monitoring and evaluation system already used by the Emilia Romagna Region, an **experimental approach to counterfactual impact evaluation** was designed and applied to training courses funded by the Emilia-Romagna Region between March and June 2013. These were attended by 148 unemployed citizens who were on the unemployment lists of the Emilia-Romagna Region. All course participants were interviewed before and after the training.

Moreover, in order to emulate a **Randomised Controlled Trial (RCT)** methodology, a group of individuals similar to the course participants in the training was selected as **control group**. This was composed of: the applicants to the courses who were not selected (about 60 individuals) and unemployed people of the same age as the participants in the training courses, living in the region and registered on the unemployment lists of the employment centres of the provinces of Bologna, Parma and Rimini. In total 360 people were pre-selected for the control group. A summary of the main characteristics of the methodology is illustrated in Table 6 (see §4.3 and Box 3 for a more detailed description of the methodological approach).

**Table 6 –'Pane & Internet – Lavoro' Methodological approach for experimental impact evaluation / RCT**

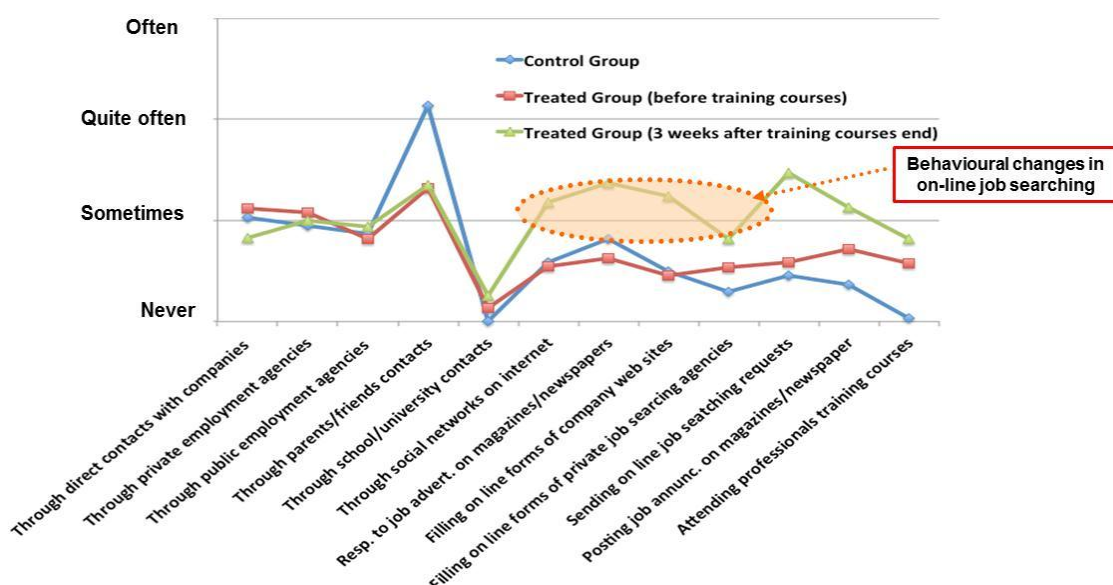
Group	Composition	Questionnaires administered (see Annex for the full version as referenced in bracket)	Valid responses collected
Treated Group (TG)	148 unemployed people between 35 and 65 years old attending the training course	<ul style="list-style-type: none"> <li>- Pre-treatment questionnaire (<b>A/TG questionnaire for RCT-P&amp;I-L</b>) administered on day 1 of the course, in paper format during April-May</li> <li>- Immediately post-treatment questionnaire (<b>B/TG questionnaire for RCT P&amp;I-L</b>) at the end of the course, in digital format during April-May</li> <li>- Post treatment questionnaire (<b>3WA/TG questionnaire for RCT P&amp;I-L</b>) 3 weeks after the treatment was concluded and sent by email during April-May</li> </ul>	<ul style="list-style-type: none"> <li>- 104 responses for the pre and post <i>treatment</i> questionnaires and</li> <li>- 53 responses for the questionnaire Post treatment (3 weeks after)</li> </ul>
Control Group/Non treated Group (nTG)	360 unemployed people between 35 and 65 years old not attending the training course	- nTG questionnaire ( <b>3WA/nTG questionnaire for RCT P&amp;I-L</b> ) administered at the same time as the POST-T3W was administered to the TG, through a telephone interview between 2 <sup>nd</sup> -24 <sup>th</sup> May 2013	- 99 subjects of the control group were finally interviewed on the phone

Expected **outcomes** of the intervention were behavioural changes in online job searching with regards to channels used and intensity of the online activities carried out. The **impact variables** assessed included the following employability indicators: average number of job contact from social networks (in the last month); average number of social networks used for job searching (in the last month); average number of job searching online and replies to advertisements; average number of job searching portals consulted, (in the last month) and average number of job offers received (in the last month).



## Key results and lessons learned

The analysis of the outcomes of the testing activity shows significant behavioural changes in job searching methods used by the treated group compared to the control group (see Figure 9).



**Figure 9 – Behavioral changes in job searching methods usage (outcome indicators)**

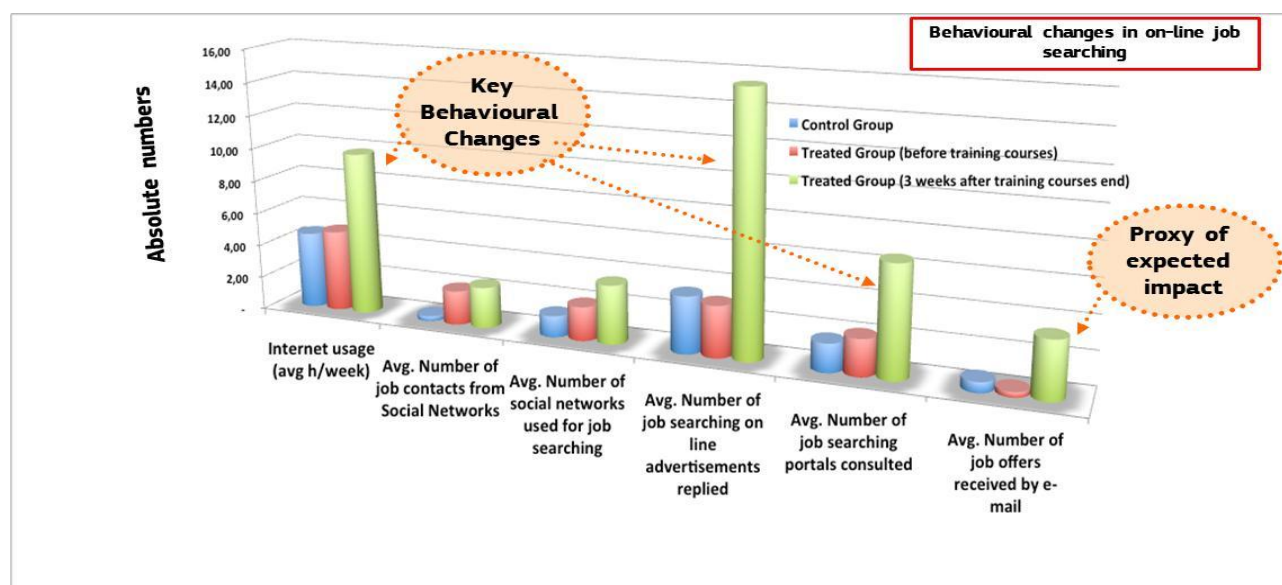
As shown in Figure 9, the treated group (green line), interviewed three weeks after the end of the training courses, has significantly increased the use of Internet as a method for job searching, if compared with the behaviour of the control group (blue line), as well as in relation to the behaviour of the same treated group before the training (red line). In particular amongst the various options of on-line search presented the, one that respondents cited as the most used, after the intervention, are: *use of social networks* and *use of on-line job application forms to be filled and/or submitted online*.

The existence of a cause-effect relationship between the training activities of the intervention and the enhanced employability (in terms of impacts) of the trained people seems also confirmed by the results presented in Figure 10 showing behavioural changes in using Internet for job-search which were evaluated in respect to the impact variables.

As it can be seen in Figure 10, the treated group three weeks after having received the training courses has significantly increased its employability conditions (see the green bars in the histogram). In particular: “*the average number of job searching on line advertisement replied (in the last month)*” and “*the average number of job searching portals consulted (in the last month)*”, seem to be the most interesting variables for showing evidence of causality between the intervention and the changes in the employability capabilities of the training participants.

The variable measuring the “*average number of job offers received by e-mail (in the last month)*” is particularly interesting. From the results of the analysis, it seems evident that the average number of job offers received on Internet by participants in the training, only three weeks after the end of the courses (see green bar) is significantly higher than the number of job offers received by the treated group before the training courses (see the red bar), and by the control group in the same time frame (see the blue bar). This increase in job offers received by participants is without any doubt due to the improvement in their capabilities acquired through the training courses and it could be considered to be a good proxy of the impacts of the intervention on the employment conditions of the trainees. However, it must be underlined that the experiment was designed in order to isolate the ICT aspects of the intervention from other factors that may affect the employability of participants. This is clearly artificial as other elements, mainly ‘offline’, influence the possible impacts on both the treated and untreated individuals.

In addition to this, it must be recognised that several limitations exist with regard to the sampling of participants. Although the intervention in this case was designed specifically to test the MIREIA eI2-IAF, the selection of participants could not be done in a fully randomised manner. Participants' motivation may therefore be a factor that influences selection, as it often is in this kind of experiments. Moreover, the short duration of the experiment and the limited number of responses may also indicate the challenge posed by drop-outs during the intervention. The difficulty of retaining people and the changing nature of participants in eInclusion interventions are in fact among the most problematic factors that can complicate impact evaluations using experimental design.



**Figure 10 – Behavioral changes in using internet for job searching (impact variables)**

One of the main **lessons learned** is that, in order to replicate the experiment a longer timeframe would be needed to capture the longer-term impacts of the intervention on behaviour and on employability. In this case, the experiment was carried out over a very short period (3 months in total). The Emilia-Romagna Region now plans to have a second wave of interviews for both the treated and non-treated groups one year after the completion of the '*Pane & Internet – Lavoro*' intervention. This will provide more evidence on the persistence of the behavioural changes in the job-searching of the trained individuals and make possible an evaluation of the impact of the intervention on their employment status.

Another crucial aspect that emerged as a result of the testing, relates to the need to embed impact evaluation into the monitoring and evaluation activities of the intermediaries, beyond the experimentation stage. Testing the MIREIA eI2-IAF in this case study was a positive experience and, as a result, the region is clearly interested in formally integrating this approach into the management of the intervention. However, the allocation of appropriate resources must be considered if the implementation of this approach is to be guaranteed.

Finally, this exercise also requires that relevant stakeholders are involved from the beginning of the process. Only thus can the purpose of the evaluation be shared and validated and appropriate instruments designed. Moreover, a robust *ex-ante* perspective should be adopted so that all the necessary resources are available on time to conduct the analysis, and the interviews for data collection, especially as far as the non-treated group is concerned. One of the main challenges encountered during the trial in the Emilia Romagna region, was the fact that some organisations expressed concern about data protection and the privacy of citizens. An important lesson learned is that it is essential to devote enough time and resources to getting proper authorisations in advance to use the data from the surveys of treated and non-treated groups. Thus, any problems that may arise due to privacy issues can be avoided.

### 5.2.2. INN&CIA - ICT-enabled social innovation for employability and entrepreneurship, Guadalinfo, Andalusia, Spain

#### Background and context

The economy of Andalusia is dominated by small, medium and micro enterprises (SMMEs) and 99% of companies have fewer than 500 employees (higher than the Spanish and European averages). Small and micro enterprises (less than 10 employees) represent more than 95% of the total. The unemployment rate in the region is currently 36% of the labour force (2013, National statistical Institute-INE) and the youth unemployment rate was over 60% in 2012. Since 2007, a number of initiatives to promote entrepreneurship and reduce unemployment were implemented, including: the 'Andalusia Information Society Plan', now in its third edition, and the 'Entrepreneurship Plan' launched in early 2013.

In this context, the Consortium "Fernando de los Ríos" (a public entity in charge of promoting the development of the Information Society in Andalusia) manages the **Guadalinfo** programme which plays a specific role in promoting the access to and the use of ICTs to disadvantaged groups, especially in rural and remote areas. Guadalinfo consists of a network of 756 centres: 692 in municipalities with less than 20,000 inhabitants and 64 in urban areas at high risk of social exclusion. It is funded by the Junta de Andalusia (regional government). It started in 2003 as a pilot project, as part of the Regional Programme of Innovation Activities in Andalusia, and led to the development of the centres in the entire region. The Guadalinfo centres aim to foster complementary innovation activities, electronic services, online collaboration, and entrepreneurial initiatives ensuring the effective and continuous use of the opportunities offered by ICTs. Guadalinfo activities are addressed to all citizens. However, the main **target groups/beneficiaries** are those people, organisations or localities with the most difficulties in accessing and using ICTs.

Regarding **monitoring and evaluation systems**, Guadalinfo has developed a set of assessment platforms used to measure every project funded. This is done through a business intelligence platform, which standardises all the data sources, allowing *ad hoc* reporting. The platform has also defined a set of more than 140 indicators related to the Guadalinfo strategy.

#### Case study description

Operating under the umbrella of Guadalinfo, the **INN&CIA** programme aims to counterbalance the effects of the economic crisis. It promotes ICT-enabled social innovation to support employability and entrepreneurship in Andalusia. In addition, it aims to establish a collaborative environment which will allow beneficiaries already supported by Guadalinfo to further improve their entrepreneurial skills by using the opportunities offered by ICTs. It is hoped that this will reduce the unemployment rate and increase the economic growth of the region. The intervention started at the end of 2010 and is currently ongoing. Already more than 1,300 citizen-based innovative projects are operating within the scope of Guadalinfo. 300 of them are supported as part of INN&CIA and are active in diverse fields such as tourism, employment, training, inclusion, environment, web 2.0, sustainability, accessibility or culture.

The **specific objectives** of the INN&CIA interventions are to:

- Accelerate the development of selected creative ideas by adding value and creating synergies with other entities and sharing good practices;
- Serve as a point of exchange for innovative ideas involving ICTs;
- Attract and promote talent in Andalusia, involving people who wish to develop their ideas and those who want to collaborate with existing projects;
- Create "idea labs" where information and knowledge flow in order to connect initiatives and promoters;
- Promote a multidisciplinary interactive online forum to be used to cope with future challenges to promoting entrepreneurship and social innovation in Andalusia.

INN&CIA is composed of five key actions:

- Social mentoring and advice on operational issues of the selected projects;
- Market Place: this activity consists of face-to-face meetings in a collaborative environment where experts advise project participants on funding mechanisms, business models, social media strategies and creativity that allows specific viable projects to evolve using the opportunities offered by ICTs;
- INN&CIA Labs: Guadalinfo centres act as social innovation Living Labs focusing on user experience, active listening, creativity, development of projects and startup support;
- INN&CIA community: a mentoring activity which aims to follow the development of the initiatives from idea to project; and,
- Open INN&CIA: this includes in the process other projects that emerged outside Guadalinfo.

The main **target group** of INN&CIA is unemployed people and small and micro entrepreneurs, who are the most affected by the crisis. INN&CIA offers people the opportunity to promote their ideas and gain support for the development of their projects.

In terms of **inputs**, the intervention received funding of €37,365, €108,843 and €121,827 in 2011, 2012 and 2013 respectively. It employs 37 part time employees and about 750 local facilitators who are in charge of the telecentres, supporting the development of citizen-based ideas or projects. In addition, it has 25 territory managers who coordinate local workflow and connect each territory cluster with the rest of Andalusia, creating the right environment for synergies. 30 experts are occasionally asked to advise on various topics, support promotion and dissemination, and attract funding.

In terms of **outputs**, more than 300 projects have been treated with INN&CIA between 2011, 2012 and 2013. In 2011, for example, there were 132 projects enrolled in INN&CIA.

A project management tool has been designed to support the **monitoring and evaluation of INN&CIA**, which allows data to be collected for each project in execution. This tool includes 150 indicators related to Guadalinfo members' activities. This facilitates the monitoring of the projects supported.

In this case study, the application of MIREIA eI2-IAF allowed us to test a specific methodology for counterfactual impact evaluation, based on an observational (or quasi-experimental design) known as **propensity score matching (PSM)**. The propensity score matching methodology was used by comparing the effects produced on a set of impact variables by a sample of companies that received assistance from both INN&CIA and Guadalinfo interventions, with the effects on the same set of variables for a similar group of companies that received, in the same time frame, assistance through the Guadalinfo programme only.

The 300 projects which received treatment (from both the Guadalinfo and the INN&CIA initiatives) based on project/entrepreneur characteristics, were compared with the other 1,000 which only received treatment from the broader Guadalinfo initiative. An online questionnaire (see Table 8) was developed, which received 59 respondents from those treated with Guadalinfo and INN&CIA, and 280 from those treated with Guadalinfo only. As these projects joined progressively during the three years of the intervention's timeframe, impact assessment had to take into account the differences in the amount of time different projects received treatment.

The **matching variables** that were used to determine the control group were: age, level of education, gender, former involvement in social innovation activities of the project promoter, support from other interventions, work experience of the project promoter, previous employment sector of the project promoter, and type of product or service promoted.

A summary of the main characteristics of the methodology is illustrated in Table 7. (See §4.3 and Box 4 for details on the methodological approach followed).

**Table 7 –'INN&CIA' Methodological approach for Propensity Score Matching**

Group	Composition	Questionnaires administered (see Annex for the full version as referenced in bracket)	Group
Treated Group (TG)	300 projects treated with Guadalinfo and INN&CIA	Post- treatment questionnaire ( <b>Questionnaire for PSM-INN&amp;CIA"</b> ) submitted by email during 3 weeks in February 2013)	59 responses from the treated group and
Control Group/Non treated Group (nTG)	1000 non-treated with INN&CIA (Guadalinfo only)	nTG questionnaire ( <b>Questionnaire for PSM-INN&amp;CIA"</b> ) submitted by email during 3 weeks in February 2013 (at the same time as questionnaires for TG)	280 responses from the non-treated group

The measurement of the impact of the INN&CIA initiative was carried out by means of the **impact variables** and associated questions shown in Table 8. These questions refer to changes in the evolution of the situation of the TG and nTG during the last three years. It had to be taken into account that each project was created or treated at a different time during the three years the intervention ran. This may have affected the assessment of their impacts. The questions in bold have been further analysed in Figure 11 below.

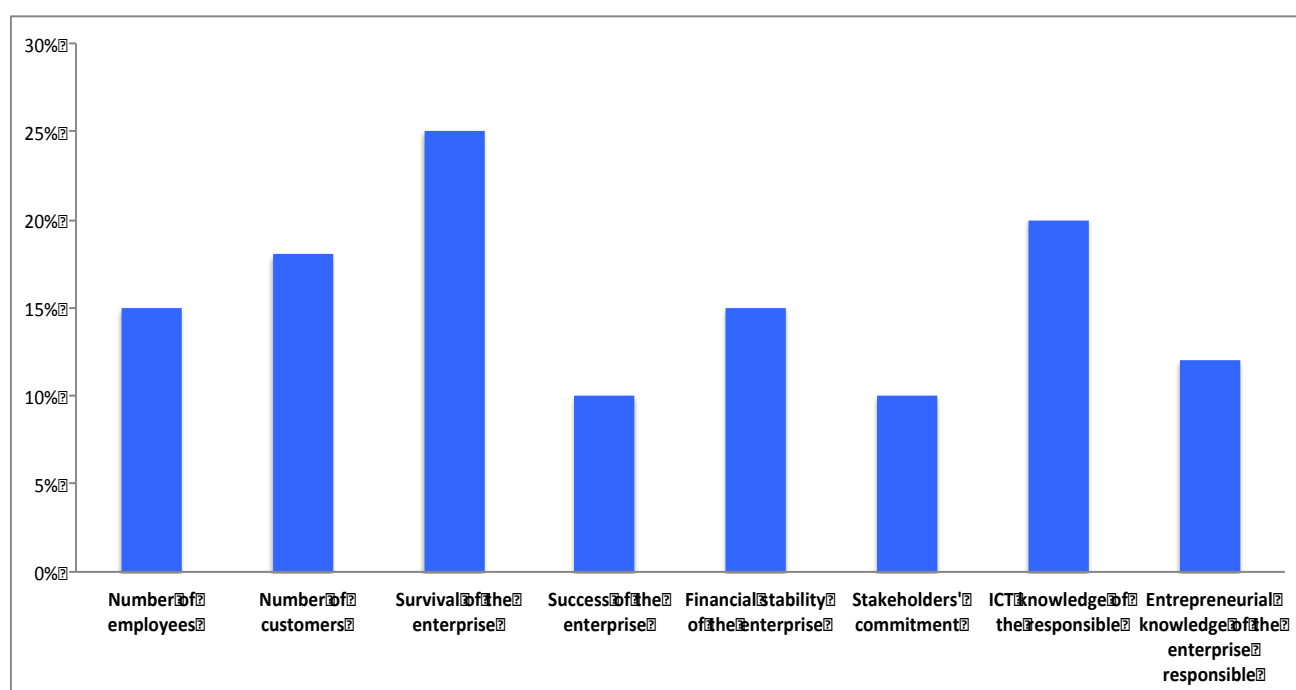
**Table 8 –'INN&CIA': questions and impact variables used for applying the Propensity Score Matching**

Class of variables	Questions	Options				
<b>Impact variables at project level</b>	Level of profits in the last year	<=10.000	10.000-30.000	50.000-80.000	80.000-100.000	>=100.000
	Level of capital expenditure/investments in the last year	<=30.000	30.000-55.000	55.000-160.000	160.000-250.000	>=250.000
	Level of turnover in the last year	<=50.000	50.000-100.000	100.000-300.000	300.000-500.000	>=500.000
	Ratio of current assets to current liabilities in the last year	Number				
	Level of employment (FTE)	Number				
	<b>Number of employees</b>	Number				
	<b>Number of customers</b>	Number				
	<b>Is the project still ongoing?</b>	Yes	No			
	Level of voluntaries participating (FTE)	Number				
	<b>Level of commitment of stakeholders in supporting the initiative</b>	Very poor	Poor	Medium	Good	Very good
	<b>Degree of stability of financial support in time</b>	Very poor	Poor	Medium	Good	Very good
	Degree of public dependency of financial support	Very poor	Poor	Medium	Good	Very good
<b>Impact variables at entrepreneurial level</b>	<b>How do you judge your entrepreneurial skills</b>	Very poor	Poor	Medium	Good	Very good
	<b>How do you judge your ICT skills</b>	Very poor	Poor	Medium	Good	Very good
	<b>Do you consider the initiative to be a success?</b>	Yes	No			
	To what extent the success of the initiative is linked to ICT skills?	Very low	Low	Medium	High	Very high

## Key results and lessons learned

The results of the experimental analysis conducted are presented in Figure 11 which clearly shows that the impact variables are all positively influenced by the INN&CIA initiative. This points to a causality relationship between INN&CIA and its expected impacts represented by the variables listed in the Figure 11. Therefore, we can see that the eInclusion intervention coordinated by the Consortium Fernando de los Rios provides evidence that it fights unemployment and supports the competitiveness of the Andalusia Region.

Figure 11 shows the difference between the average values for each impact variable for the treated and the control group. For example, it shows that the average survival rate of the enterprises is about 25% higher for the treated group than it is for the control group. In the same way, the average number of employees is 15% higher for the treated group. It also shows that the **variables most affected** (where the most difference between the treated and the control groups can be seen) are the enterprise survival rate, the ICT knowledge of the person responsible, and the number of customers. On the other hand, the least affected variables are the success of the enterprise and the stakeholders' commitments based on their own self-assessment (see impact variables and associated questions above). These results should be carefully considered, as the propensity score matching does not completely eliminate bias due to selection and underlying dynamics of the economy. Nevertheless, the results give a clear indication of which variables are most affected by the intervention.



**Figure 11 – Difference on average of reported levels of impact variables between treated and control groups**

The key **lesson learned** from this testing exercise is that extra effort is needed to contextualise and develop specific indicators in the MIREIA eI2-IAF for the specific objectives of a given intervention. In this case, these are related to social innovation: for example indicators that capture the social value generated by the intervention. Another lesson was that the staff in charge of the data collection, monitoring and evaluation required further guidance on the methodological implementation. This points to the need for dedicated training and a practical handbook to help in the process. Finally, it must be emphasised that, for an observational approach like the one we followed, in order to eliminate the selection bias, it is crucial to address the problem of sustainability of participation, typical of eInclusion interventions. Often in fact, intermediaries deal with individuals who approach their services and participate in the interventions at intermittent points. This does not allow us to distinguish the positive impacts by interventions on participants from the negative impacts on those who abandoned the same interventions. It is therefore

required that, as it is in the INN&CIA case, organisations that are part of the intervention are accompanied regularly so to monitor the level of participation of individuals in a consistent manner.

### **5.2.3. FIT - Fast Track to IT, Ireland - ICT-Skills training to address long-term unemployment**

#### **Background and context**

In the 1990s, Ireland saw economic prosperity with an average economic growth rate of 6.5%. However, in 2001, there was a downturn due to the collapse of the 'Internet bubble', which affected the IT sector. In 2004, a second period of economic prosperity started, which included a recovery in the ICT sector. Then, in 2008, the financial/property crash resulted in a major economic downturn. In January 2013, unemployment was 308,500 or 14.8% of the total labour force, of which 184,800 or 8.8% was long term unemployment (people unemployed for 12 months or more).

In general terms, in relation to the issue under investigation, Ireland has two specific problems. Though ongoing demands for ICT skills are greater than mainstream supply, the number of people at risk of poverty and social exclusion who have untapped capabilities, remains excessively high. To address these challenges, in Ireland many policies have been implemented which seek to tackle exclusion and poverty. These include the Social Partnership Agreement 2006-2015, the National Development Plan 2007-2013, the European Social Fund and the part that applies to Ireland of Europe 2020. These are complemented by several initiatives, from the private and third sectors. One of these is **FIT – Fast Track to IT initiative**, which addresses specifically the issues of bridging the industry needs for IT skills in the market with long-term unemployment, especially for people belonging to disadvantaged and marginalised groups.

FIT seeks to fill the IT skills gap through the selection, training, placement of and support for suitable trainees from disadvantaged backgrounds. It develops and promotes ICT-based training programmes and career development opportunities for job seekers who have become detached from the labour market in an increasingly knowledge-based economy.

FIT is an industry-led<sup>57</sup> not-for-profit initiative which works in close collaboration with government departments (FÁS, Department of Education & Skills and Department of Social Protection amongst others) and national education and training agencies, local development organisations and a host of community-based organisations active in the ICT realm and engaged in the provision of training for people at risk of social exclusion. Since it started in Dublin in 1999, FIT has expanded substantially and now operates across the whole Republic of Ireland. More recently FIT has commenced programmes in Northern Ireland under the banner FIT-NI. FIT's operations include the following activities:

- Recruitment of trainees for courses: holding information sessions, processing applications, administering aptitude assessments and assisting training centres.
- Induction and registration of FIT students, who are briefed in advance on all aspects of the course.
- Provision of online training and development resources.
- Provision of total quality management of the FIT Training Programmes, from recruitment to the attainment of certification and placement.
- Development and provision of job techniques through CV workshops, interview techniques, mock interviews, work etiquette in preparation for internship/ employment opportunities.
- Ensuring regular interaction with companies, provision of assistance to each student in securing an internship or job placement at the end of the course.

FIT deploys two methods of collecting data for **monitoring and evaluation**: the student database and a set of surveys. The information required for the student database is collected by a Training & Education Officer (TEO) who follows the students enrolled in the programmes. The periodic surveys are usually carried out by external experts, using questionnaires and interviews.

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<sup>57</sup> Companies represented on FIT board: Accenture, AOL, ATOS, Cisco, DELL, Ebay, EMC, IBM, ICT Ireland, Lionbridge, Microsoft, Maxim, NTR, Oracle, Origin Enterprises, PayPal, SAP, Sisk Healthcare, Siemens, SkillSoft, Symantec, Version 1 and WeLocalize

## Case study description

In Ireland, the case study chosen for investigation was the main FIT skills development programme or Training for Employment intervention. Its objective was '*to integrate marginalised job seekers into the workforce through the acquisition of marketable ICT skills*'.<sup>58</sup>

The **beneficiaries** of this intervention were unemployed belonging to disadvantaged and marginalised groups. The intervention aimed to help these people progress to further education and employment, reducing the risk that they descend into poverty and helping them to become more included in the broader society.

Regarding **inputs** the budget was €2,647,000 in 2011. 19 full time employees were employed by this intervention. In 2013, the budget was €4,010,000 and 26 employees were employed. In terms of **outputs**, in 2011, the number of participants completing the activities was 2,833, which is a bit more than the average number of participants in the activities per year over the last 5 years.

In addition to the testing of the overall MIREIA eI2-IAF, the application of the Impact Evaluation component of MIREIA eI2-IAF in the Irish case, as discussed in Chapter 4, used a simplified method of impact evaluation. This is based on the comparison of the cohort of past students and a control group consisting of past applicants who have not received any training support by FIT.

The FIT case study therefore defines the following comparison groups:

- **Cohort of past students (2011-2012):** involving this group was crucial as the results concern those who had completed the FIT training and had been in the job market for a year. Impacts recorded by this cohort represent their actual experiences after the FIT training. The only downside of this approach was that FIT's experience demonstrated that in fact a longer period of 3 years should pass before assessing the impact of FIT training on its graduates. After only one year, the placement rate was expected to be lower than after 3 years. For the purposes of the case study, however, this cohort was chosen to maximize the response rate as their contact and association with FIT was still strong. The student database was used to send the online questionnaires by email to 915 past students selected at random.
- **Cohort of past applicants (2011-2012):** this control group is made up of past applicants who were not offered a place or did not take up a place on a FIT training course. They therefore had had only minimal contact with FIT. They formed the control group used to assess the impact of FIT. E-mail addresses for these applicants had been stored in the student database when they applied for the training course. This database was used to send the online questionnaire by email to the 463 past applicants selected at random.

Both these groups were contacted a year after they did (or might have done) FIT courses. These questionnaires contained questions about the situation of participants (TG) before the intervention and one year after the intervention. In the case of the nTG, the questionnaire also contained questions about their situation when they applied for the FIT training course and one year after. Thus the responses show how the situations of both groups evolve.

Data were collected using an online questionnaire including the following **impact variables**:

- Average hours per week using a computer before joining FIT, average hours per week using a computer at the time of the survey;
- Money saved by the participant per year from using the Internet;
- Employment-unemployment status before and after the programme/treatment;
- Participation in education or training before and after the programme/treatment;
- Participation in paid work, or self-employment (before and after the programme/treatment);
- Perception of the prospects of being unemployed in three years' time;

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<sup>58</sup> Memorandum of Understanding between FÁS and FIT Ltd. 2012



- Perception of the prospects of having paid employment in three years' time;
- Perception of computer skills (before and after the programme/treatment);
- Perception of employment prospects (before and after the programme/treatment).

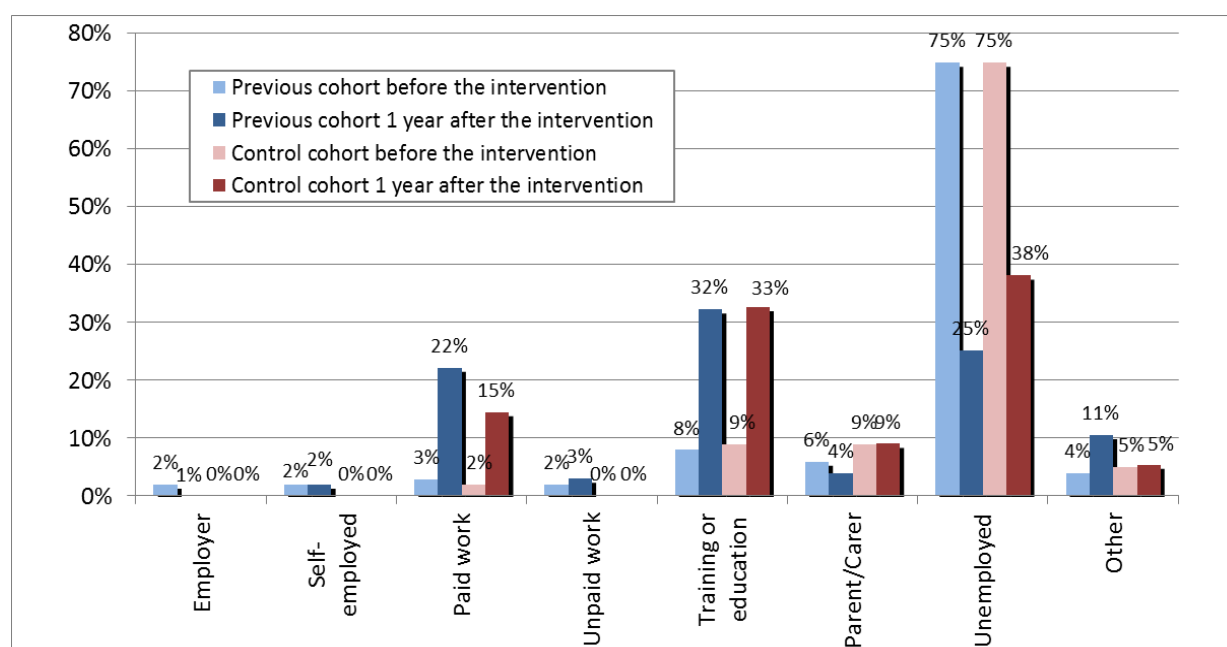
A summary of the main characteristics of the methodology is shown in Table 9 (See §4.3 for a more detailed description of the methodological approach).

**Table 9 – 'FIT': summary of methodological approach for simplified impact evaluation**

Group	Composition	Questionnaires administered (see Annex for the full version as referenced in bracket)	Valid responses collected
Treated Group (TG)	915 Past students' /Previous cohort (2011-2012):	Online Questionnaire ( <b>POST-T1Y/TG questionnaire previous cohort FIT</b> ) distributed to past students by email in April 2013	301 responses from Past students' cohort (2011-2012):
Control Group/Non treated Group (nTG)	463 Past applicants'/control cohort (2011-2012)	Online Questionnaire ( <b>nTG questionnaire control cohort FIT</b> ) distributed to past applicants by email in April 2013	104 responses from Past applicants' cohort (2011-2012)

## Key results and lessons learned

Figure 12 below compares the activities of the previous cohort and the control group (past applicants 'cohort). Lighter colours in the graph describe activities before the intervention. Darker colours, with percentage values, provide an insight into current activities. The time period corresponds roughly with a year after the previous cohort had completed their intervention at FIT. For both groups, 75% were unemployed before the intervention and there was a positive change in the following period with regards to the number of unemployed respondents, which decreased in both groups. The number of unemployed in the treated group dropped from 75% to 25%, while in the control group, it dropped from 75% to 38%.



**Figure 12 – Comparison between previous cohorts and control cohort one year after intervention**

The number of employed respondents increased in both groups. In the treated group, employment (this includes paid workers, self-employed and employers) increased from 7% to 25% while in the control group it increased from 2% to only 15%. The difference in the evolution of unemployed and employed people between the treated and non-treated groups, shows that the intervention had some positive effects on the

employment of the participants. Moreover, not surprisingly, the average annual income of those in the previous cohort that found employment was €23,500 while the average annual income amongst those in the control group that found employment was a bit lower - €21,700. Therefore the intervention may also have a positive impact on the level of income.

Further analysis shows that similar numbers from both the treated and non-treated groups received additional training to improve their employability after the intervention. This is perhaps not surprising since there are a large number of initiatives trying to get unemployed people into work in Ireland. Therefore this may show that it is difficult to isolate the specific impact of the FIT intervention on the current employment/training status of the participants in a context where there are many similar interventions.

Indeed, Figure 12 shows that the difference between the impacts on TG and nTG are not very great and in both cases, there is a positive change. Besides, the impacts were measured only one year after the intervention, and FIT considers that at least 3 years are needed to capture the real impact of the intervention. In this period, however, FIT TG and nTG could also become participants in other similar interventions which, as mentioned before, would make it even more difficult to identify the causal relationship between the FIT intervention and the impact on participants.

In this respect, it is important to emphasise that although the approach followed in the FIT case provides us with an estimation of the possible impact of the intervention analysed, it has a number of **limitations**. First of all, there was not a baseline survey for either treated or non-treated groups, so we do not know whether the nTG also showed an increase in employability over time, but just started out at a lower point than the TG. Furthermore, it is possible that those who participated in the intervention were very different from those who did not, mostly in terms of their skills and employability prospects because they entered the programme exactly using their skills and motivation as selection criteria. This means that participants who have been selected may differ in terms of their capacity and motivation to find a job with respect to those who were not selected.

Finally, the **lessons learned** from this exercise in experimental impact evaluation have highlighted the importance of repeating this activity regularly and using the data to build a much stronger monitoring and evaluation system to follow FIT students' progress for at least three years. Access to an external easy-to-use tool, complemented by practical guidelines such as the MIREIA eI2-IAF Toolkit, was considered a great help for obtaining robust results, which have credibility and good standing with stakeholders. It was recognised that this impact evaluation would possibly become an increasingly important element in the search for funds and sustainability of FIT interventions.

Moreover, the MIREIA eI2-IAF can help us understanding better the relationships between 'digital' interventions and tangible offline outcomes, when comparing participants in eInclusion interventions with control groups / non treated groups. The evaluation of other non-ICT-related aspects and activities conducted to search for employment for instance is necessary and should be accounted for when carrying out impact evaluation, in order to avoid an overestimation of the positive impact of the intervention.

#### **5.2.4. FRSI – Information Society Development Programme, Poland – Link to the future**

##### **Background and context**

In December 2011, the unemployment rate in Poland for those aged up to 24 years (and not in education) was 27.7% (compared to an unemployment rate for all ages of 9.9%<sup>59</sup>). The Polish government observed that the highest levels of unemployment were amongst those entering the labour market for the first time, because of their lack of educational qualifications and professional experience, or because training and skills development was disconnected from the job market demand. This was particularly true in rural areas where young people were less interested in looking at new and more promising ICT-related job opportunities. It was recognised that ICT could play an important role in broadening the scope of alternatives for young people on the job market. This principle was included in the 'National Plan for Employment Support 2012-2014' (KPDZ/2012-2014 Krajowy Plan Działań na rzecz Zatrudnienia), approved

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<sup>59</sup> Source: Eurostat: available at: [http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search\\_database](http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database)

in August 2012, which has ever since been guiding interventions to increase opportunities on the job market for young people threatened by social exclusion and unemployment.

The Information Society Development Foundation (FRSI) is a non-governmental organisation based in Warsaw. It was established as a foundation in 2008 by the Polish-American Freedom Foundation (PAFF) in partnership with the Bill & Melinda Gates Foundation. FRSI's key activity is the **Library Development Program** which aims to help Poland's public libraries to provide young people with access to computers, the Internet, and ICT training. The programme's goal is to improve opportunities of those living in rural areas, enabling them to participate fully in the economy, education, culture, social relationships and community life by revitalising local libraries. The Programme includes: ICT training and educational activities for library staff, hardware equipment and software for libraries, small grants, capacity building of the library system and various advocacy and outreach activities.

The Programme targets librarians and the general public visiting libraries. Since 2009, the Program has been providing support for more than 3,300 local public libraries in more than 1,100 small towns and villages, transforming these libraries into modern, multi-functional information, cultural and education centres which stimulate civic involvement.

FRSI manages the Library Development Programme. The following major programme partners contribute to it: Microsoft Corp. donates software (via TechSoup), Telekomunikacja Polska S.A. (largest telecom operator in Poland) provides free Internet connection to all public libraries for three years, the Ministry of Culture and National Heritage that initiated the 'Library+' venture, implemented by the Book Institute, provides grants for the renovation of libraries and training for librarians.

### **Case Study description**

Based on the **Library Development Programme** experience, FRSI developed a specific intervention initially named 'eSkills and your future profession' and promoted thereafter by the name **'Link to the future. Youth, Internet, Career'**. The **main goal** of this intervention is to empower young people on their way into the job market. It also aims to increase the employability of young people, especially those living in rural areas, in the future through informed educational choices. To stimulate their conscious choice of educational sectors closest to job market demands, the project had the opportunity of using the FRSI network of libraries (3,300 libraries out of 6,600 of rural libraries in Poland in total) to organise workshops presenting ICT skills development pathways and related job opportunities to young students.

The intervention started in September 2012 and will run **for three years**. It aims to organise the encounter between students and young successful professionals who use ICT in their profession. They deliver information about the current and future trends on the job market in order to enhance youth employability prospects and influence their educational choices. The format of these encounters is a 90 minutes seminar or meeting addressed to groups of about 30 students. The session develops job-searching skills and raises the awareness of participants about the growing importance of ICT both as a tool to search for jobs, and as an area in which they could be employed.

More **specific and short-term objectives** were to:

- Increase young people's awareness of the importance of ICTs for professional development, in terms of job search and as an important skill in future professions;
- Support young people from rural areas in planning a professional career in the development of the information society and the knowledge-based economy;
- Inspire young people from villages and small cities to think creatively about their professional future, and have aspirations beyond those conventionally set by their environment.

**The main beneficiaries/target groups** of the intervention were young people from villages in rural areas and small cities (up to 20 000 inhabitants), focusing on their choice of careers, particularly pupils (15-19 years old) attending upper secondary school or the final grades of lower secondary school.

In terms of **inputs**, the total budget of the intervention in its first edition (2012/2013) amounts to \$166.700 and the team consists of two persons: project manager and project assistant – both working

part-time. Regarding **outputs**, during the course of the intervention 280 institutional organisers held 308 meetings attended by more than 10,000 participants. It was assumed that up to 14,000 young people would benefit from the project over 3 years.

As far as the **monitoring and evaluation system** originally applied to the intervention, it mainly consisted of self-administered paper questionnaires for youth participating in the meetings that were collected and aggregated by librarians.

**Regarding the testing activities**, as described in Chapter 4 in the Polish case, a simplified approach to impact evaluation has been used. This was deemed particularly useful as, in the case of Poland, the aim of the impact evaluation approach was not to establish the existence of a causality relationship between the awareness meetings organised by the network of libraries belonging to FRSI and the conscious choice of the students about their university education and the implications of this choice for their future job opportunities (as this would mean assessing the status of 'treated' students several years after the intervention, and also many other variables that would intervene in that choice). Instead, the aim was to assess whether the awareness meetings organized by FRSI were considered of relevance by the participants in making a conscious choice of their university education in relation to their future opportunities to find a job.

To validate the success of the intervention, the choice of university education of a set of students who had not participated in the meetings was also assessed. These students were selected by the meeting organisers on the basis of age and territorial origin, so that they were similar to the students who participated in the workshops. The key elements of impact evaluation approach used were the identification of two cohorts of students:

- **Current cohort:** At the end of the meeting, a paper questionnaire was administered to the participants by the meeting organisers (709 responses from 22 meetings were collected);
- **Control cohort:** survey of the control group of non-participants. The meeting organisers administered a paper questionnaire to a sample of young people who did not participate in the meeting (519 responses collected from 18 meeting organisers). The non-participants have the same age range as the current cohort and were selected on the basis of convenience/opportunity of access to them (through schools 'pupils, library visits, etc.) by the meeting organisers without randomizing or matching the selection.

A summary of the main characteristics of the methodology is illustrated in Table 10 (See §4.3 for a more detailed description of the methodological approach).

**Table 10 – 'FRSI': summary of methodological approach for simplified impact evaluation**

Group	Composition	Questionnaires administered (see Annex for the full version as referenced in bracket)	Valid responses collected
Treated Group (TG)	Current cohort: pupils (15-19 years old) attending upper secondary school or last grades of lower secondary school attending to the meetings	Post-meeting surveys to youth participating in the meetings ( <b>POST-T/TG questionnaire current cohort FRSI</b> ). Paper questionnaire administered by the meeting organiser at the end of the event during April 2013	709 responses from 22 meetings collected
Control Group/Non treated Group (nTG)	Control cohort: pupils (15-19 years old) attending upper secondary school or last grades of lower secondary school non-attending to the meetings	Surveys to youth non-participants. Paper questionnaire administered by the meeting ( <b>nTG questionnaire control cohort FRSI</b> ). organiser to a non-randomised or matching sample during April 2013	519 responses from 18 meetings collected

The **impact variables** analysed were the change in the participants' attitudes to study and developing ICT skills, the assessment of the usefulness of the meetings for planning their professional futures and the importance of the meeting in improving their employment prospects.

However, although the two questionnaires described above were implemented, during the testing exercise of the MIREIA eI2-IAF, the only valid data that was collected was through the post-meeting surveys of the young people who participated in the meetings. In fact, the resulting data has provided different sets of indicators that did not allow us to analyse them in a comparable way. A comparison with the control group was also statistically not significant.

## Key results and lessons learned

Due to the difficulties encountered in the operational implementation of the data gathering process, the number of comparable responses collected from the control group and the treated group were relatively limited. This was due to the fact that the aggregation of the data collected was done in a not homogenous way by of the organisers of each of the meetings. Nevertheless, the analysis of the responses of the participants in the meeting (see Table 11) shows that for 80% of them were more interested in studying ICT and developing their skills, and more than 60% of them consider ICT skills important for improving their employment prospect.

**Table 11 – FRSI 'Link to the future': feedback from participants**

Meeting characteristics	After Meeting Current Cohort
<b>Meeting rating</b>	<b>Very good: 63%</b> , Good: 30%, Medium: 4%, Poor: 1%
<b>Has your attitude to study and developing ICT skills changed?</b>	Increased significantly 16%, <b>Increased 64%</b> , Has not changed 18%
<b>Usefulness for planning professional future?</b>	Very useful 10%, Useful <b>43%</b> , Medium 27%, Not useful 14%
<b>Importance in improving employment prospects</b>	Very important 12%, <b>Important 49%</b> , Medium 30%, Not important 6%

One of the **lessons learned** is therefore that careful planning and capacity building is required for data gathering implementation. This would allow an adequate level of information about the assessment of the interventions to be gathered. FRSI also suggested that a user-friendly tool would help them use the MIREIA eI2-IAF themselves and requested that the question bank and indicators be enlarged as much as possible. It was also suggested that incentives to answer surveys would improve the response rate.

## 5.3. Cross-case Analysis

The four case studies selected for testing the MIREIA eI2-IAF have been implemented by eInclusion intermediaries operating in different European countries, all of which have unemployment rates above the EU28 average. These countries consider unemployment to be one of the major causes of social exclusion.

Table 12 provides an overview of the key characteristics of the selected cases in terms of the nationality and organisational structure of the intermediary, and the typology and area of intervention they are focusing on.

**Table 12 – Key characteristics of the case studies**

	<b>P&amp;I-L</b>	<b>INN&amp;CIA</b>	<b>FIT</b>	<b>FRSI</b>
<b>Nationality</b>	Italy	Spain	Ireland	Poland
<b>Organisational typology</b>	Public body Heterogeneous network of intermediaries supported by Regional Government	Public Entity Network of Small organisations (i.e. Telecenters)	NGO – (Private) Medium organisation distributed across the Irish territory	Foundation(Public/Private) Network of Small organisations (Libraries)
<b>Typology of intervention investigated as case study</b>	Training on Internet Job search for unemployed people through local employment centres	ICT-enabled intervention to promote entrepreneurship, self-employment and social innovation; Network of Small organizations (Telecenters)	ICT training for unemployed people from disadvantaged groups; Medium organization distributed across the Irish territory	Awareness interventions to orient students in choosing a future ICT career
<b>Geographic area of intervention</b>	Regional	Regional	National	National-Local (rural areas)

It is also important to notice that all the cases cover wide territories, some through their own organisation (e.g. FIT) and others through local organisations belonging to their network (e.g. the network of Telecentres of Guadalinfo in Spain (INN&CIA) and the network of Libraries (FRSI) in Poland). The case of Emilia-Romagna in Italy (P&I-L) involves a heterogeneous mix of private and public NGOs supported by the regional government. The MIREIA eI2-IAF has been tested on eInclusion intermediaries with different organizational structures. This is important as it shows the applicability of the approach in diverse contexts and its relevance and feasibility at local level, in a variety of interventions.

Therefore, important insights into the feasibility of the impact assessment framework's application in different typologies of intermediaries operating in diverse contexts emerge from the cross-analysis of the testing experiences of the MIREIA eI2-IAF.

First of all, though all intermediaries clearly have a good knowledge of the socio-economic characteristics and needs of their target groups, a structured approach to **context analysis** is not always taken. In some cases, like the Emilia Romagna Region and Guadalinfo in Andalusia, in Spain, the interventions have been designed to fit with the regional policy plans and are directly embedded into a structured system of monitoring and evaluation. Other cases, however, for example the interventions in Ireland (FIT) and Poland (FRSI) complement policy efforts carried out by the national and regional governments. In such cases, the risk is that these interventions may overlap with other initiatives and a synergic approach is required to make the best of these actions.

In all cases, however, the importance of conducting a context analysis through a structured approach when applying the **Impact Measurement tool was highlighted**. The exercises carried out during the testing of MIREIA eI2-IAF found that this process of qualitative and quantitative situational analysis was crucial to understanding better the impacts of the interventions conducted and the strategic planning of future activities. A good example is Guadalinfo, where the results of the analysis conducted as part of the testing of MIREIA eI2-IAF helped the management board of the Consortium Fernando de los Rios to revise their strategic approach and provide evidence to support the planning of the new programming period (2014-2016). In this context, the INN&CIA intervention has been used as a case in point to justify the renewal of funding for further action in the field of ICT-enabled social innovation in support of self-employment and entrepreneurship.

With regard to the **system of measurement indicators**, the four cases presented different degrees of advancement in the field of monitoring and evaluation. This provides elements for understanding how to apply in concrete the MIREIA eI2-IAF in relation to diverse situations.

The **Emilia Romagna Region** had already established a structured monitoring process which allowed the Region to develop an extensive and constantly updated database with relevant information on the *outputs* and *outcomes/impacts* of interventions. However, the information collected was only partially used by the Region, mainly for statistical analysis of the number of interventions funded and evidence of the outputs produced by such interventions (e.g. number of trained persons; skills improved after the interventions; participants' degree of satisfaction). The experimental application of the MIREIA eI2-IAF led the Region to acknowledge the lack of a specific measurement system and related tools suitable for assessing the impacts of its eInclusion interventions and better managing the allocation of funds to the intermediaries' network.

In the case of the **Consortium "Fernando de los Rios"**, a monitoring system of the funded interventions was developed and used as a project management tool to collect information on the *outputs* produced by each funded intervention. It was also used to select projects for funding (ex-ante) and to assess how far they achieved their objectives. During the application of the MIREIA eI2-IAF it became evident to the Consortium and to the whole Guadalinfo network that the impact measurement tool, and particularly the system of measurement indicators, could provide an assessment of *outcomes* and *impacts* generated by the interventions. Thus, while testing the MIREIA eI2-IAF, the Consortium "Fernando de los Rios" identified the opportunity to define a homogeneous data gathering process on *inputs-outputs-outcomes* for all the members of Guadalinfo network. It decided to include the MIREIA eI2-IAF approach into its strategic planning activities, not only to assess current and ongoing projects, but also as a planning instrument for future interventions. The indicators and evaluation criteria developed as part of the MIREIA eI2-IAF will therefore be used to select interventions for funding in the future.

**FIT (Fast Track to IT)** in Ireland is an example of an intermediary that aims to develop and promote ICT-based training programmes and career development opportunities for job seekers who have been detached from the labour market in an increasingly ICT-based economy. Despite being a hybrid organisation (private & NGO), FIT is primarily an industry-led initiative which works in close collaboration with government departments and national education and training agencies. Therefore, providing evidence of the impact of its activities is crucial for guaranteeing FIT's funding and visibility. A fairly consolidated monitoring process was already in place for assessing *outputs* and *outcomes* of interventions, complemented by ad hoc surveys to measure *long-term impacts*. During the testing of the MIREIA eI2-IAF, however, FIT recognised the importance of having an Impact Measurement Tool that could aggregate all the information collected on the *outputs-outcomes-impacts* of the interventions. This provided an aggregate view of the impact generated by all FIT's eInclusion interventions. It also summarised the achievements and the added value of its activity to the funders more clearly and effectively. In addition it improved its activity planning process with more clear evidence on the results obtained in the past programming period and helped select the types of intervention to be designed in the following one.

The **Information Society Development Foundation (FRSI)** in Poland represents another type of intermediary. In fact, FRSI had a monitoring process embedded into its financial support scheme, which showed its donor that the planned activity was well performed and the intervention had achieved a large number of the target group members. However, this process only measured the *outputs* of the interventions and, to a certain extent, the quality of the interventions and the satisfaction of beneficiaries. During the testing of the MIREIA eI2-IAF, FRSI recognised the importance of a more structured approach to assessing intervention outcomes and impacts. It also recognised that MIREIA eI2-IAF was a useful instrument which could: encourage FRSI personnel to acquire a results-oriented approach when eInclusion interventions are funded and implemented; develop a structured impact measurement system for assessing the interventions during their implementation stages and when they are concluded; and provide aggregated evidence of the results achieved by the overall set of eInclusion interventions developed by FRSI on an regular basis.

Finally, since the cases under investigation address **different typologies of interventions**, oriented to employability at different stages of users' life and with different approaches, it is clear that the system of measurement indicators developed as part of the Impact Measurement Tool of the MIREIA eI2-IAF seems to be comprehensive enough to cover the full cycle of interventions related to ICT for employability. As already mentioned in Chapter 4, however, more specific indicators may be required to apply the MIREIA eI2-IAF to other contexts and to different typologies of intervention.

A similar consideration is required with regard to the **Impact Evaluation Methodologies** experimented during the testing of the MIREIA eI2-IAF in the four cases. Clearly, it is difficult to generalise the findings from the impact evaluation experiences conducted in the four cases due to the different approaches followed. However, it is exactly this diversity of approaches that represents an added value of the MIREIA eI2-IAF as it proposes methodologies that can 'fit' the situation of the intermediary, according to the resources and capacities available and the needs for conducting such an exercise.

As anticipated in Chapter 4, it should be remembered that counterfactual impact evaluation methodologies *strictu sensu* have been applied in the Italian and the Spanish cases, ensuring as far as possible the elimination of possible biases and distortions in the analysis. The Spanish case study undertook the most robust counterfactual approach using propensity score matching techniques, with both 'treated' and 'non-treated' groups, selecting the control group so that it resembled as far as possible the treated one.

The Italian case applied an experimental - although limited- approach, mirroring a Randomised Controlled Trial. The methodology for RCT demands that individuals should be randomly allocated to both 'treatment' and 'non-treatment' groups. In the Italian case, however, the treated group was predefined and a randomised sample of non-treated individuals was used to mirror the treated group.

In the Irish and the Polish cases, the Impact Evaluation methodology was limited to the assessment of the mean deviation between treated and non-treated groups, without further investigating the cause-effect relationship between the treatment of the individuals and the impact of the interventions. The choice of a simplified impact evaluation approach for the Irish case is due mainly to the fact that the training intervention under analysis was directly linked to job opportunities offered by the ICT industry. It was therefore considered unnecessary to apply rigorous counterfactual approaches for impact evaluation. For similar reasons, the Polish case adopted a simplified method of impact evaluation. In this case, the local ICT industry supported the awareness raising action by libraries to encourage students to choose university degrees more in line with the job opportunities in the territory. This would increase the possibilities of matching university graduates to jobs. Both cases compare a cohort of 'treated' individuals and a 'control cohort' composed by 'non-treated' individuals. However in the Polish case the analysis was limited since there was little difference between the two groups, probably due to relatively limited treatment (i.e. 90 minute meetings) and the areas being investigated (i.e. changing individuals' perceptions). Moreover, in the Polish case, the treatment of individuals is not directly related to employability, rather to the choice of an education path related to ICT and ICT skills. The intervention consisted of a single meeting in which a class/cohort was encouraged to choose an ICT-related career. The Irish case was the only study that enabled the longer-term impact (one year after treatment) to be examined.

Altogether, the four cases represent an interesting range of the situations in which intermediaries can find themselves when implementing interventions oriented towards the better use of ICT for employability. The findings suggest that different impact evaluation methodologies should be adopted according to different contexts in which intermediaries operate. It is important to remember that we were interested in testing the feasibility of impact evaluations approaches and learn lessons for further more effective implementation. This was more important than achieving solid results from the application of these methodologies in the four cases. In this regard, the analysis of the cases allowed us to learn some important **lessons**, particular as regards the challenges of data gathering and impact evaluation.

First of all, in general terms, all the cases showed that it is crucial to ensure an initial involvement of relevant stakeholders when deciding to conduct impact measurement and evaluation. This can be achieved through public seminars, in which the overall approach and design can be jointly agreed. The same applies to the need to 'contextualise' the tools composing the MIREIA eI2-IAF to the particular objectives of the



intervention. This includes defining questionnaires that are more focused on the intended outcomes/impacts of the interventions to be evaluated, as well defining more specific indicators that may be required to better capture the results of interventions.

It also emerged from the testing experiences that adequate resources must be available, both in terms of technical and scientific capacities and economic and time related, if intermediaries wish to apply counterfactual impact evaluation methodologies. They are complex and require dedicated efforts in preparation and execution. An important lesson learned from the Italian case is that proper authorizations to use the survey data on treated and non-treated individuals must be acquired, in order as to avoid delays and problems due to privacy issues. This means that appropriate actions should be taken in advance in order to ensure the availability and access to databases necessary to conduct the analysis, or to get authorisation to use data from individuals, and the organisations holding these databases.

Finally, all cases recognised the importance of the MIREIA eI2-IAF and in some cases (Spain and Italy in particular) the intermediary organisations involved in the testing have decided to integrate this approach into their regular (mainstream) monitoring and evaluation activities. However, all the cases expressed the wish for a handbook and an easy-to-use electronic Toolkit for the MIREIA eI2-IAF.



## 6. Research and policy implications

### 6.1. Research implications

The key findings of the research provide a number of contributions to knowledge that are also relevant to policy and practice.

First of all, from a theoretical perspective, **the development of the MIREIA eI2-IAF contributes to the understanding of how eInclusion interventions can increase participation by excluded individuals and disadvantaged groups in the social and economic life of their community.** The MIREIA eI2-IAF aims to better understand whether and how a given intervention can contribute to preventing exclusion and to promoting social and economic inclusion.

Second, from a methodological standpoint, **the research developed and applied an impact assessment framework to capture and measure the effects of eInclusion interventions on the target groups addressed and the policy impacts mediated by intermediaries. However, further research is required to test the validity of the MIREIA eI2-IAF on a larger scale and in more depth.** This would require, for instance, setting up social experiments to observe and monitor the changes that eInclusion initiatives run by intermediaries are generating in their socio-economic contexts.

**From a methodological perspective, the following very concrete lessons have been learned** from the application of the MIREIA eI2-IAF to the four cases:

- Participants in the evaluation need to be involved as early as possible so as to allow contextualisation of the operational tools to the objectives of specific interventions.
- There is a need to further emphasise the importance of gathering appropriate context data and developing an estimate of expected impacts. It is also important to introduce variables which measure the socio-economic impact generated by eInclusion interventions that current indicators cannot capture.
- Issues related to national privacy rules and regulations should be carefully considered when embarking on data gathering. More nuanced issues related to data protection (sometimes associated with cultural or institutional aspects) should also be addressed.
- Providing training and capacity building to eInclusion intermediaries on monitoring and evaluation is also crucial.

Finally, although the findings of the research provide evidence of the impacts of eInclusion intermediary interventions, **further exploration of the role these actors could play in promoting eInclusion could be of policy interest.** This analysis provides meaningful insights to open the debate and stimulate the more in-depth applied research that is needed to better understand the direct and indirect policy impacts of eInclusion intermediaries, and their interventions. This could improve future policy development.

### 6.2. Policy implications

From a policy and practice perspective, **the MIREIA eI2-IAF is a clear advancement on the existing methods for assessing the impact of eInclusion interventions.** It allows us to systematically gather micro-data from eInclusion interventions through intermediary organisations, in order to evaluate their contribution to eInclusion policy goals. In addition, by applying counterfactual impact evaluation methodologies, it allows us to estimate the impacts of eInclusion interventions on the socio-economic context of reference for the eInclusion intermediaries.

Furthermore, **the proposed methodology is easily replicable in different contexts and relatively easy to use,** at least for the main features of the operational framework. The application of counterfactual impact evaluation techniques may require expert support.

In the complementary component of the research, the survey of eInclusion intermediaries, it emerged that over 90% of eInclusion intermediaries in Europe offer access to computers and the Internet and provide

basic ICT digital literacy training. Half of the organisations offer employment-related training (e.g. online job seeking, application, CV development, and training on social media and other collaborative software), social inclusion services (e.g. ICT supported access to government and social services) and education/skilling support (e.g. online training courses). **Thus, the operational framework developed appears very relevant to the vast majority of intermediaries across Europe.** It is therefore suggested that policy makers at different levels should encourage the use of the MIREIA eI2-IAF and support the establishment of methodological and operational coordination to collect comparable data and aggregate it at national and European levels.

Findings from the survey of eInclusion intermediaries also show that in addition to specific ICT-related services, a number of actions in complementary fields of intervention are carried out by these actors. Over half of them provide other (non ICT-related) social inclusion-related services in relation to employability, entrepreneurship, skilling, social and government services. Although the operational framework has a more specific focus on employability, its flexibility and the modular approach followed would allow it to be extended to other dimensions of specific impact. It is therefore suggested that, following the example of DG Employment in the PROGRESS programme, **further social experiments focusing on the various dimensions of eInclusion be set up.** These experiments could produce solid counterfactual evidence on impact in a few localities, in addition to providing useful methodological recommendations for generalisation of results, large scale implementation and replicability.

However, in this respect, it should be underlined that 'testing' a methodology through the analysis of outcomes and impact of 'pilot' interventions requires monitoring over a long period of time, which clearly exceeded the timeframe of our research. The activities conducted as part of our research were more focused on the process of developing, testing and validating the framework, than on effectively assessing the impact of the interventions over time. In this connection, **a policy action that could be implemented would be to further promote the generalisation of the MIREIA eI2-IAF.** This could be done, for example, through the funding of a 'large-scale' pilot, or by embedding the MIREIA eI2-IAF approach into mainstream policy interventions, such as those funded by the European Social Fund (ESF) or other emerging policy initiatives.

An additional element to consider is the fact that the MIREIA eI2-IAF was developed with a view to assessing the socio-economic impact of eInclusion intermediaries and their activities. It was built in a participative manner in order to gather insights and feedback from stakeholders and experts working in the field, and to ground its conceptual model in real practice.

It is suggested that the MIREIA eI2-IAF Toolkit for self-assessment be promoted at European level in collaboration with networks of stakeholders and practitioners. Policy research centres could be invited to further support the local application of the framework. The Commission could support this process of awareness raising and capacity building, by helping to disseminate and promote the use of the MIREIA eI2-IAF across Europe.

A clear connection exists between the work conducted as part of this research and the possibility of applying the MIREIA eI2-IAF to initiatives on ICT-enabled social innovation. In fact, though several policy interventions are being implemented in this field, methods of measurement and metrics for assessing social innovation in general, and the role of ICTs to enable social innovation in particular, are still underdeveloped.

As social innovation is becoming fully embedded in EU policies and programmes, it will be vital to be able to demonstrate impact and provide assessment of what works. The ability to select from a very wide range of options those that are most promising is a key challenge facing many institutions. **The MIREIA eI2-IAF could serve as the basis for the EC, Member States and intermediary organisations to conduct ex-ante assessment of policy initiatives addressing ICT-enabled social innovations. It could also support in-itinere and ex-post evaluation of the social returns of specific projects, programmes and policy interventions.**

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